The impact of China's split share structure reform and convergence with International Financial Reporting Standards on the quality of reported earnings

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Award date:
2020

Awarding institution:
University of Bath

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A thesis submitted for the degree of Doctor of Philosophy

University of Bath

School of Management

May 2019

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The material presented here for examination for the award of a higher degree by research has not been incorporated into a submission for another degree.

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I am the author of this thesis, and the work described therein was carried out by myself personally.

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Abstract

In the first decade of the twenty-first century, China, one of the world's largest economies, undertook both share market structure and financial reporting reforms as part of the country's development towards a more international, market-based economy. The split share structure reform (SSSR), implemented in three phases over 2005-2009, made previously untradeable shares in state owned enterprises (SOEs) tradeable in the stock market from the beginning of 2009; and International Financial Reporting Standards (IFRS)-converged Chinese Accounting Standards (CAS) replaced old Chinese GAAP for periods of account beginning on or after 1st January 2007.

Using accounting and market data over the period 2003-2010 (inclusive), this research investigates the impact of implementation of the SSSR and the adoption of IRFS-converged CAS on the earnings quality of Chinese listed firms. Earnings quality is considered widely, across dimensions of accrual quality, earnings persistence, earnings timeliness and earnings (and returns) value relevance. Some of the empirical models are applied/interpreted in a novel/unconventional manner – as required in Chinese context of this study. The SSSR and convergence with IFRS are considered in tandem.

This study finds strong evidence to support hypotheses that SSSR-related incentives led to: (i) downwards earnings management in the first phase of the SSSR implementation (negotiation phase, 2005-2006); (ii) upwards earnings management in the second (lock-in) phase of the SSSR (lock-in phase, 2007-2008); (iii) downwards earnings management in the third phase of the SSSR implementation (trading of previously untradeable shares, 2009-2010); and (iv) a significant reduction in earnings quality, as variously assessed. Further, that the downwards/upwards manipulation of earnings was driven into share prices over 2005-2008 – when Chinese market was of low liquidity and questionable efficiency. In addition, the evidence shows that IFRS-convergence in China from 2007 could not (and did not) significantly curtail earnings management in response to SSSR-related incentives. Some evidence, indeed, is suggestive that earnings management activities were less constrained under IFRS-converged CAS than they were under old Chinese GAAP.

In terms of specific earnings quality results, this study finds that in the first phase of SSSR (2005-06), ahead of the adoption of IFRS-converged CAS, there was a net shift away from income-increasing to income-decreasing discretionary accruals; earnings persistence and predictability decreased; earnings smoothness increased; large loss reports and timeliness of loss recognition increased; and earnings value relevance and earnings response coefficient increased. In the second phase of SSSR (2007-08), despite the adoption of IFRS-converged CAS in 2007, working capital accruals quality reduced; there was a net shift away from income-decreasing to income-increasing discretionary accruals; earnings persistence and predictability reduced; timeliness of loss recognition reduced; and earnings value relevance and earnings response coefficient increased. In the final phase of SSSR (2007-10), post-IFRS-convergence, working capital accruals quality reduced, there was a net shift away from income-increasing discretionary accruals to income-decreasing discretionary accruals; earnings persistence and predictability reduced; earnings smoothness and large loss recognition increased; and earnings value relevance and earnings response coefficient both decreased.

This research adds to the accounting literature on earnings quality/management, and, in particular, the association between earnings quality and IFRS adoption (convergence) in the context of strong Chinese institutional and country factors – in considering/investigating the joint effect of IFRS convergence and SSSR on earnings quality for the first time. The findings will be of interest aside from providing a warning to international and Chinese-domestic investors/analysts as regards the earnings quality of Chinese listed firms. The findings of this research will help academics, policy makers, regulators and professional bodies to understand better the effect of accounting and market regulatory reforms in China, thereby facilitating their ongoing development of the Chinese accounting regulation and stock market structure.

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SSSR	Split share structure reform
IFRS	International Financial Reporting Standards
GAAP	General Accepted Accounting Principles
CAS	Chinese Accounting Standards
SD	Standard deviation of estimated residuals from working capital accruals
DA	Discretionary accruals
|DA|	Absolute value of discretionary accruals
$\|DA^+\|$	Absolute value of income-increasing discretionary accruals
$\|DA^-\|$	Absolute value of income-decreasing discretionary accruals
EOA	Earnings on assets
SDPred	Estimated standard deviation for earnings predictability
SPOS	Small positive earnings
SNEG	Small negative earnings
LNEG	Large negative losses
EPS	Earnings per share
ME	Market value of equity
R	Equity return
BAD	Report losses
P	Share price
BVPS	Book value per share
ERC	Earnings response coefficient

Acknowledgements

I cannot imagine accomplishing my PhD studies without the guidance of my supervisors: Prof Richard Jackson, Dr Pietro Perotti and Dr Margaret Greenwood. I have benefited from their inspiration, motivation, criticism and patience; and, vitally, their encouragement and continuous support. They have guided and safeguarded me to the end of my PhD – which has demanded a great deal of challenge, exploration and self-development.

I would also like to thank the other academic staff, my PhD colleagues and the professional services staff at the University of Bath. I have never been disappointed when I have had a problem and asked them for help.

I have no words to express my gratitude to my family and friends who always have faith in me; and have supported me unconditionally through this remarkable journey.

Chapter 1: Introduction

1.1 Topic area and importance

This study investigates the earnings quality of Chinese listed firms over the period 2003-2010, using a range of financial statement and market-based approaches. China is one of the world's largest, and fastest growing economies, being also by far the largest developing economy. Over the focal period of this study, China implemented major accounting and market reforms, which were significant steps in the country's development from a closed, centrally directed economy, to a (purportedly) more efficient, international and market-based one: adoption of International Financial Reporting Standards (IFRS)-converged Chinese Accounting Standards (CAS); and implementation of Split Share Structure Reform (SSSR).

Financial statements are of great and widespread importance in the worlds of business, finance and economics. The fact that security prices, which are influenced by financial information, determine the allocation of wealth among firms and individuals has led to a great deal of interest from academic researchers, practicing accountants and standards setters (Kothari, 2001). Financial statements present corporate financial information, which is mandated by legislation/regulation, being required and used by regulators, financial market investors, creditors and analysts. Thus, financial information shown in firms' financial statements is of key interest to the financial market participants and other stakeholders. Since the seminal publication of Ball and Brown (1968), the research on the relationship between financial statement information and capital markets has grown rapidly and dramatically, with a great deal of researchers' attention directed towards investigation into whether financial reporting provides useful information for investors in terms of their investment decision making (Ali and Hwang, 1999; Ball *et al.*, 2008; Barth *et al.*, 2001, 1998; Bartov *et al.*, 2001). Within the field, there is a substantial and growing amount of accounting literature on financial reporting quality, i.e. the quality of accounting information disclosed through corporate financial statements.

Financial information users require faithful and reliable financial reporting of sufficient quality for it to be useful in decision making. The International Accounting Standards Board (IASB) has described 'high quality' financial reporting to be highly decision useful to the

majority of primary financial report users (investors) in estimating the true value of the reporting entity. This demands the entity to report financial information that is both relevant, faithful, and without earnings manipulation. It is not practically possible, however, for financial information reports to represent a full disclosure of absolute accuracy: analysis of business performance and position in complex competitive markets is subject to significant accounting estimates and judgements. Hence, an information asymmetry between inside financial information generators and outside information users exists in the real world, with perfectly faithful representation by financial statements being unachievable (Kimeli, 2017; Ball, 2001).There are, of course, structural mechanisms established to mitigate the information asymmetry between inside financial information generators and outside users in the form of financial reporting and corporate governance systems (Ball, 2001; Bushman and Smith, 2001).[1]

The IASB has defined two major (and desirable) fundamental qualitative characteristics of financial reporting: relevance and faithful representation. Financial reporting is considered to be of high quality, if the financial statements provide faithful and relevant financial information on corporations that allows outside information users to appreciate the underlying economic realities and make appropriate investments and risk management decisions.

In this thesis the quality of published financial information is considered, in particular, the quality of corporate earnings, by a variety of means – investigating earnings quality (subsuming faithfulness and relevance) across the dimensions of accrual quality, earnings persistence, earnings timeliness and value relevance. In addition, there is assessment of the extent to which Chinese financial statements, as regards earnings, at least, meet the aspirations of the IASB in terms of qualitative characteristics. The IASB aspirations are particularly pertinent as regards the impact of China's mandatory adoption of IFRS-converged CAS for the periods of account commencing on or after 1st January 2007.

The Chinese setting in the first decade of the twenty-first century is particularly interesting as regards investigation of earnings quality for the following principal reasons.

[1] Including regulation, monitoring/auditing, enforcement, professional guidelines and practice, etc.

First, China's uptake of IFRS in 2007 was not a complete adoption, rather convergence (as per the terminology used above). Second, between 2005 and 2008, China implemented SSSR in the stock markets, making a large number of previously non-tradeable (largely government-controlled) shares tradeable, with the intention of increasing the market discipline of firms and hence, their efficiency. As is discussed and developed in a later section of this chapter, the SSSR implementation process gave strong and changing earnings management incentives to managers. Third, China's firms and markets were (and remain so, though to not to the same degree) characterised by strong political influence, weak legal enforcement and a long tradition of social/political network-based transactions in business. The reform in parallel with both the accounting regime and financial markets in this context, provides a natural laboratory in which to study the impact together of multiple major influencers of accounting information quality. Finally, China's importance in the world economy has increased along with its rapid economic growth. In 2010, it reported a nominal GDP of RMB 39.80[2] trillion and a foreign exchange reserve of USD 2.8 trillion, thus overtaking Japan as the second largest economy in the world (Bloomberg News, 2010). Poor corporate governance and financial reporting quality were becoming major obstacles to China's further economic growth (Wu and Patel, 2015). Zhang and Ma (2005) found that financial fraud is much more common in China than in the US, and approximately 15% of listed firms have a record of practising accounting fraud, with high-profile corporate scandals involving the falsification of financial statements. Extensive corporate fraud and accounting manipulation severely undermine investor confidence and hinders the development of China's business sector. Investigation of earnings quality, with a view to better informing investors, regulators and policy-makers - and so facilitating quality improvement – is a most important undertaking.

The perspective and intention of this thesis is investigation of the impact of change of accounting regime (to IFRS-converged CAS) alongside implementation of SSSR and other contextualising features of the Chinese economy. The nature and content of accounting standards are important inputs into accounting information quality; financial reporting quality can be affected, however, by other significant institutional factors – in China, certainly, including, the degree of market liberalisation, government intervention, legal enforcement,

[2] Currency rate: 31st December 2010: 1GBP=10.286RMB; 1USD=6.589RMB; 31st December 2018: 1GBP=8.764RMB; 1USD=6.879RMB

and the importance of social/political network in business. Within a particular accounting environment, China and elsewhere, notwithstanding other factors, accounting standards are viewed as the direct impactor on accounting information quality (Barth *et al.*, 2008; Soderstrom and Sun, 2007). The direct impact on accounting and accounting quality results principally from change in approaches to recognition and measurement (Soderstrom and Sun, 2007). Other factors such as legal environment, market regulation and structure are considered to be indirect parameters (Barth *et al.*, 2001). In order to prepare a set of financial statements, firms are required primarily to follow the procedures and rules stated in accounting standards. Accounting information quality can be assessed (albeit imperfectly) by analysis of information presented in the firms' financial statements, as prepared according to the requirements of each country's accounting standards. Thus, change in accounting standards will have an impact on (the assessment of) accounting information quality (Barth *et al.*, 2008; Ding and Su, 2008; Dechow *et al.*, 2010). Soderstrom and Sun (2007) argued that a change to a better quality of accounting standards will increase accounting information quality by reducing measurement error. At the same time, however, indirect effects may have complementary or contra impacts on accounting information quality. In the Chinese context, over the period of this study, one potential major indirect impactor, inter alia, is SSSR. Prior research has shown that indirect factors, including corporate governance system and capital market policy, substantially influence the financial reporting quality (Agrawal and Chadha, 2005; Bhagat *et al.*, 1999; Bushman and Smith, 2001).

In sum, this thesis examines accounting information quality, specifically the earnings quality of Chinese listed firms over the period 2003-2010. Given the foregoing, the impact together of both of the two major reforms completed in China over this period is considered: the introduction of IFRS-converged CAS, mandatory for periods of account commencing on or after 1st January 2007; and the implementation of SSSR, which was commenced in 2005 and completed by the end of 2008.

This chapter continues in the next sub-section with further discussion on the research setting, with the research objective and research questions also being presented. Section 1.3 then provides further discourse on the drivers of earnings quality in the Chinese context and the incentives facing firms and managers, with high-level hypotheses subsequently being

developed. The nature of the methodology adopted is covered in Section 1.4. Finally, Section 1.5 covers the motivation and intended contribution of this work.

1.2 Research setting, research objective and research questions

Since China's 'open door' economic reforms of 1979, the Chinese Ministry of Finance (MoF) has launched a series of accounting reforms to mitigate the differences between Chinese accounting standards and the international accounting standards issued by the International Accounting Standards Committee (IASC) and the International Accounting Standards Board (IASB). In 1985, the MoF promulgated the *Accounting System for Foreign Joint Ventures*,[3] requiring Chinese firms to provide consolidated reporting for the first time and intended to meet the information needs of foreign investors. Following rapid growth of foreign investment in China during the 1990s, the MoF replaced this with the *Accounting System for Foreign Enterprises* in 1992. The MoF also issued the *Accounting System for Experimental Joint Stock Limited Enterprise* in 1992 to meet the needs of new domestic information users, who had emerged as a consequence of the establishment of Chinese stock exchanges in Shanghai and Shenzhen.[4] Only since then have Chinese (listed) firms been required to provide an annual balance sheet, income statement and statement of changes in financial position, with a structure and presentation recognisably similar to those adopted by UK and USA firms. The 1992 accounting system for Experimental Joint Stock Limited Enterprises was replaced in 1998 by the *Accounting System for Joint Stock Limited Enterprises*, representing a further step in adopting internationally recognised and acceptable accounting practices. In January 2001, the *Accounting System for Business Enterprises* (ASBE) was added, applicable to a wider diversity of Chinese firms and focusing on the needs of non-governmental information users, whilst also representing more widespread progress towards harmonisation with international standards. This was developed in 2006 to become *Accounting Standards for Business Enterprises*, which is substantially in line with IFRS and resulted in IFRS-converged Chinese Accounting Standards (CAS), effective from 1st January 2007 onwards.

[3] The term 'foreign joint venture' here simply means a Chinese firm with both Chinese domestic and foreign investors.

[4] Prior to the establishment of the stock exchanges, only government agencies, parent companies and foreign investors required firm reporting. The establishment of the exchanges created a broad class of domestic public investors in Chinese firms.

Given the extent of reform of Chinese accounting standards over the last three decades, the Chinese MoF appears to be committed to substantial (albeit not complete) harmonisation of Chinese accounting standards with internationally accepted ones. The new IFRS-converged CAS, albeit not in full alignment with international practice, are mandatory for Chinese listed firms, and thus, the international comprehensibility and comparability of Chinese financial statements has increased.

In parallel with reform of accounting standards, there has also been structural reform of China's investment markets. After the establishment of China's stock exchanges 1991, in order to maintain the stock of state-owned assets and state control over listed firms, the Chinese Securities Regulatory Commission (CSRC) imposed a 'split share structure' in May 1992, which divided listed firms' shares into tradable and non-tradable classes. State shareholders held a majority of the shares, mainly non-tradable shares, which could not be traded on the stock market, while non-government-controlled (commonly private) minority investors held tradable shares. This split share structure, however, induced conflict between the holders of non-tradable shares and those of tradable ones. The former were unconcerned about the firm's stock performance (Allen *et al.*, 2005), while government interventions promoted highly policy-oriented speculative investment behaviour on the part individual holders of tradeable shares (Wang *et al.*, 2008), with a short investment horizon (Chen *et al.*, 2010a). To ease the conflict and improve the incentive for shareholders of non-tradeable shares (controlling shareholders) to become concerned with stock performance, in 1998, the CSRC proposed some draft ideas about schemes and regulations to make non-tradable shares tradable in the financial market. In 1999, the CSRC ran an experiment to sell the non-tradable shares of ten selected listed firms, but this failed because the prices demanded for them were not attractive to the market.[5] In 2001, the CSRC proposed and implemented a reform requiring new issues of tradeable shares by all listed firms in order to dilute the holdings in non-tradeable ones, and bring about a 10% reduction in state-ownership via such shares. Following the first of the new issues, the stock market declined sharply and there was a three-month bear market. So, the CSRC had to halt the reform later that year. Following these unsuccessful initiatives from the CSRC, in 2004, the central government, from its State Council

[5] In the literature, the prices have been described as 'auction prices', but they were set by government, with bidding from external investors.

meeting,[6] produced *Nine Provisions of the State Council*, which contained, *inter alia*, new ideas about a split share structure reform (SSSR). In particular, the document suggested that the reform should seek to respect market principles and exercise diligence in protecting the rights and interests of investors, especially public ones. The official SSSR was proposed in April 2005, and there followed a pilot implementation amongst a small number of listed firms (81 firms in 2005). In essence, the reform provided for non-tradeable shares to become tradable via a three-phase process:

(i) Phase 1. Negotiation between firms (represented by their majority shareholders[7]) and the holders of their non-tradeable shares as regards compensation to be paid by the firms to those shareholders in recompense for possible reduction in the value of their shares as a result of a large increase in the supply of tradeable shares;

(ii) Phase 2. A two-year lock-in period, following completion of the negotiations described above – in order to avoid an immediate shock to market prices. This was so that the owners of tradeable shares should have time to assimilate the (likely) impact of the negotiations around different shares and make unhurried adjustments to their portfolios as they saw fit;

(iii) Phase 3. Market trading of formerly non-tradeable shares.

The first (compensation negotiation) phase was completed by the vast majority of listed Chinese firms by about the end of 2006 and, after the lock-in phase, full trading of shares came at the beginning of 2009.

As is evident from the foregoing, reforms concerning/towards international accounting harmonisation and split share structure developed over the same (or nearly the same) period, following the establishment of Chinese stock market in 1991 and coming to completion in the latter half of the first decade of the 21st century. Perhaps coincidentally, perhaps partly by design, the accounting development seems often to have followed the announcement of developments or ideas regarding split share structure.[8] The attempts to

[6] Held every four years by the Chinese government.
[7] Being the holders of their non-tradeable shares.
[8] This is an encouraging observation, in that the regulators of Chinese accounting would appear to be serving (or, at least, wishing to seem to serve) market information needs.

make non-tradable shares tradable in 1999 and in 2001 were followed by the *Accounting System for Business Enterprises* (ASBE) coming into effect in January 2001. Moreover, the SSSR in 2005 was followed by mandatory adoption of IFRS-converged CAS in January 2007. Finally, both the accounting and split share structure reforms were concurrent with (and coherent with) China's core economic reforms of SOEs.

The aim is to investigate the impact of the reforms in accounting and in share structure in China through acknowledging, discussing and taking into account that there are possible (probable) joint/confounding effects – since the reforms ran in parallel, they are both, *prima facie*, consistent with China's core reforms and the accounting reforms are (or are designed or purported) to support the market reforms. One key issue is determining the extent to which (if at all) IFRS convergence in China has resulted in increased reported earnings quality[9], given its implementation alongside the politically-loaded SSSR, and its role in facilitating that reform. There may well be conflicting drivers as regards earning quality, and it is not clear which will, if any, will be found to dominate.

In sum, the overall objective of this research is to investigate how earnings quality in China evolved against a backdrop of convergence towards IFRS and of split share structure reform and to determine whether the advent of IFRS-converged CAS and the SSSR were truly complementary in this regard, or whether the impact of one dominated that of the other.

Accordingly, the following research questions that can be addressed empirically have been constructed. A broad view of earnings quality measurement is adopted, given the obvious shortcoming in taking a single/narrow view, particularly in the complex Chinese context.

1. What impact, if any, did IFRS convergence and the SSSR have on earnings quality as measured by alternative models of accruals quality?
2. What impact, if any, did IFRS convergence and the SSSR have on earnings quality as measured by earnings persistence, earnings predictability and earnings smoothing?

[9] Increased reported earnings quality being a principal objective in the IASB in the development of IFRS.

3. What impact, if any, did IFRS convergence and the SSSR have on earnings quality as measured by the incidence of recognition of large losses, and timeliness of recognition of bad news?
4. What impact, if any, did IFRS convergence and the SSSR have on earnings quality as measured by value relevance of earnings and earnings response?

1.3 Discussion of drivers and incentives-high-level hypotheses

1.3.1 Chinese convergence to IFRS

Over 40 years of development in international accounting standards has targeted the enhancement of financial reporting quality and comparability of financial statements across countries. There are issues, however, as to the achievement and identification of enhanced earnings quality, as pointed out by De George *et al.* (2016). First, there is a need to establish what 'high quality' means and second, there must be recognition that high quality accounting standards may not automatically translate into firms providing high quality earnings reports. Reporting quality is affected by the capabilities and incentives of managers, policy makers and regulators, auditors etc. (Schipper, 1989; Levitt, 1998; Magrath and Weld, 2002; Houqe *et al.*, 2012; Abbott *et al.*, 2000; Christensen *et al.*, 2013). Moreover, reporting incentives and regulatory enforcement vary from jurisdiction to jurisdiction (Memis and Cetenak, 2014; Christensen *et al.*, 2013; Dechow *et al.*, 1996). Hence, even under the accounting rules, outcomes as regards quality may well be quite diverse.

Proponents of IFRS believe that its adoption improves financial reporting quality as it improves financial transparency, lowers information asymmetry, promotes cross-border reporting comparability (Carmona and Trombetta, 2008; Horton *et al.*, 2013; Houqe *et al.*, 2012); and further, it encourages international capital flows and lowers the cost of capital in adopting countries (Atwood *et al.*, 2011). Research based on large samples across EU countries and the US has found evidence that voluntary IFRS adoption leads to improved financial reporting quality. Bartov *et al.* (2005) compared earnings value relevance across a sample of 417 firms in Germany reported under IAS[10], US GAAP or local German GAAP, and

[10] The IASB was formed in 2001 to replace the IASC. Standards published by the IASB are known as IFRS and standards published by the IASC are known as IAS. The first set of IFRS (*First-time Adoption of IFRSs*) was issued in June 2003 and became effective from 1 January 2004. Thereafter, IAS adoption is replaced by IFRS adoption.

found higher value relevance for German firms reporting under IAS than under local GAAP. Ball *et al.* (2003) found that adoption of high-quality accounting standards improves the value relevance of earnings reports. An important paper from Barth *et al.* (2008) studied a matched sample of 327 IAS adopters and non-adopters across 21 countries over the period 1994 to 2003 to test whether the adoption of IAS is associated with better accounting quality. The findings suggested that IAS-based financial reports better reflect the economic reality and that IAS decrease managerial discretion in terms of accounting choice. Also, it emerged that IAS adoption is accompanied by greater enforcement. They found a significant improvement in accounting quality of adopters, as compared to non-adopters in the post IAS adoption period. They also elicited that IAS adoption lowers earnings management, improves timely loss recognition and enhances value relevance. Clarkson *et al.* (2011) contended IFRS adoption enhances comparability of accounting information in both Europe and Australia. Moreover, Horton *et al.* (2013) found that both mandatory and voluntary IFRS adoption are associated with reduced forecast errors, concluding that it increases both information quality and accounting comparability. All these studies, therefore, support the notion that IFRS adoption, relative to local GAAP, increases earnings quality.

In contrast to the findings of Bartov *et al.* (2005), however, Hung and Subramanyam (2007), when comparing reported earnings under local German GAAP and IAS, found that total assets and book value of equity are significantly larger under IAS[11] and that IAS adoption does not improve the value relevance or timeliness of financial information. Christensen *et al.* (2013) revisited the evidence provided by Barth *et al.* (2008) in the context of a single country (again, Germany) and found that firms voluntarily adopting IAS exhibit significantly improved accounting quality, while mandatory adopters exhibit little or no improvement in it. Ahmed *et al.* (2013) investigated whether IFRS adoption reduces income smoothing, earnings aggressiveness and earnings management to meet or beat targets, for a relatively broad set of firms from 20 countries that adopted IFRS in 2005. They compared the reporting quality of IFRS adopters to a matched sample of non-adopters, countries that did not allow or require IFRS adoption. They elicited that IFRS adopters actually exhibit greater income smoothing, greater earnings aggressiveness, and more delays in loss recognition.

[11] Largely because of the introduction of fair value accounting under IFRS.

From review of the early stage of IFRS, Ball (2001) was sceptical about the view that simply mandating new accounting standards for public financial reporting improves earnings quality, unless the adoption of the standards is accompanied by wholesale revision of the infrastructure that determines the financial reporting incentives of managers and auditors. He argued that the quality of financial reporting is determined endogenously by the incentives that managers and auditors encounter. Hence, an effective system of private litigation does more to improve actual practice than does regulation exogenously imposed by government[12]. This argument is reiterated in De George *et al.* (2016) review paper, they stated that the majority of early studies with regard to the impact of IFRS adoption on accounting information quality paint IFRS as bringing significant benefits to adopting firms and countries. However, more recent studies attribute at least some of earlier documented benefits to factors other than adoption of new accounting standards per se, such as enforcement changes, firms' management incentives and corporate governance structure (Christensen *et al.*, 2015; Jeanjean, 2012).

The impact of convergence towards IFRS in the Chinese context is unclear and mixed outcomes may have resulted from two key issues. First, the underlying incentive for IFRS adoption in China may not be so much about improving reporting quality, but rather, the pursuance of a simple and relatively quick route to achieve global recognition of Chinese firms' financial statements (Nobes, 2011; Kvaal and Nobes, 2010). The Chinese MOF has attempted to develop accounting standards to achieve such global recognition for the last three decades. The development of accounting standards, however, has always been under government supervision rather than involving private improvement and enforcement via the Chinese accounting and auditing professions. A lack of organisation/capability in the domestic accounting profession, and very slow progress in developing a set of Chinese accounting standards suitable for meeting the requirements of a fast-growing economy (McGregor, 2006), all made the 2007 convergence with IFRS almost imperative.

Second, IFRS convergence in China was not full adoption. In 2006, the Chinese MoF promulgated a new set of CAS: *Accounting Standards for Business Enterprises* (ASBEs),

[12] Endogenous factors here include management incentive, auditor selection, corporate governance improvement; exogenous factors include outside social infrastructure improvement i.e. regulatory and legal enforcement improvement.

regarded as being highly converged with IFRS and consisting of a new Basic Standard and 38 Specific ASBEs. The new CAS was substantially in line with IFRS, but did not represent its complete adoption. The differences between the provisions of IFRS-converged CAS and full IFRS are discussed in Chapter 2, but the principal differences may be summarised as: (i) differences in applicability/application of fair value accounting; (ii) exemption from related party transaction disclosures for Chinese SOEs[13]; (iii) fair value in debt restructuring and asset impairment; and (iv) differences in allowable approaches to consolidation. Moreover, there was the non-tradable shares reform, SSSR, around the period of IFRS convergence, which created reporting incentives (as discussed in the next sub-section below), which may have confounded accounting quality expectations as based on IFRS convergence alone and/or have had an impact on accounting quality outcomes.

The literature on accounting quality in China has been developed to consider the consequences of Chinese IFRS convergence with partial IFRS adoption. Both Taub (2006) and Ding and Su (2008) examined the partial adoption issue in the context of China's institutional setting. Taub (2006) stated that China's mandatory adoption of the IFRS-converged CAS approach was a principle-based approach for translating the new rules into China's own code. The revisions brought Chinese standards closer to the IFRS benchmark of internationally recognised quality, but new CAS only will be founded on similar principles with IFRS. Ding and Su (2008) suggested that despite the contents of new IFRS-converged CAS now substantially being converged with IFRS, Chinese accounting regulations continue to depart from it in significant respects, with the differences between IFRS-converged CAS and full IFRS being driven by China's unique institutional environment. Here, the government retains the dominant role in China's accounting regulation and practice, and remains the principal player in the Chinese economy, despite multifarious economic reforms over the last forty-years. Ball's (2001) claim, as mentioned above, is that the opportunity to improve earnings quality comes not by simple changing standards. He implies IFRS adoption should be in full and

[13] The exemption of SOEs' related party disclosure requirement corresponds to IAS No. 24, Paragraph 25: a reporting entity is exempt from the disclosure requirements of related party transactions and outstanding balances, with: (a) a government that has control, or joint control of, or significance influence over, the reporting entity; (b) another entity that is a related party because the same government has control, or joint control of, or significance influence over, both the reporting entity and the other entity. In China, at the end of 2012, there were 953 SOEs, with a total market value of almost CNY14 trillion – being over 51% of the total market capitalisation of A-share-listed companies, for which this requirement is almost null and void.

accompanied by revision of the infrastructure that determines the financial reporting-related incentives of managers, regulators, auditors etc. China, however, adopted only an incomplete version of IFRS, rather than taking it on in full, without consideration of the impact of largely unchanging politics, culture and legal environments, and fast-changing economic development. Hence, the outcomes of Chinese convergence to IFRS are difficult to predict.

1.3.2 The Chinese split share structure reform (SSSR)

One of the interesting features of the Chinese setting is the non-tradable shares reform, SSSR, concurrent with IFRS convergence. Previous studies testing the impact of IFRS adoption/convergence on earnings quality in China have lacked consideration of the joint influence of IFRS convergence together with implementation of the SSSR and conversely, investigations into the impact of the SSSR on earnings quality have not taken into account the joint impact of IFRS adoption. This study differs significantly from previous studies in that, *inter alia*, it involves considering together the impacts of IFRS convergence and SSSR implementation and whether one or the other played a dominating role.

Hou *et al.* (2015b) examined whether, in the context of SSSR, firms managed earnings to meet the performance targets. They found that, firms with weaker financial performance had stronger incentives to make an accounting-based performance commitment to reduce the share compensation that controlling shareholder had to pay in order to gain liquidity rights. The data spanned 2005-2009 and included 157 firms that offered performance commitments during the reform and 1,079 firms who did not, focusing on the former cohort. The paper does not, however, mention the possible impact of the transition to of IFRS-converged IFRS over the second half of the sample period. Liu and Tian (2012) investigated whether the SSSR had an impact on controlling shareholders' leverage decisions. With data from 2004-2010, they excluded SOEs, financial firms, ST firms and firms that went public after SSSR was finished (so, their sample is a minority of the population of 2,215 firm-year observations in total). They elicited that more concentrated controlling shareholding was associated with: (i) lower post-SSSR leverage; and (ii) more positive market reaction to the reporting of related party transactions (given a reduction in tunnelling activities to expropriate the interests of minority shareholders were reduced). Hou *et al.* (2012) examined whether the SSSR improved SOEs' share price informativeness by improving corporate

transparency, employing data from 2001-2008, and adopting variation in firm-specific return as a proxy for share price informativeness. They found that, improved share price informativeness among firms that were more sensitive to the impact of the reform, these being those firms that had a higher proportion of state-owned or restricted shares. Concerned by the effect of IFRS adoption/convergence in China in 2007, they cut their sample before the first quarter of 2008 in order to enable them to make findings supposedly unaffected by IFRS convergence. IFRS-converged CAS were mandated from 1st January 2007, so their sample period should have been cut at March 2007, rather than 2008, to exclude the time period in which mandatory IFRS could have affected the share price movements. The apparent anomaly is explained because a cut at March 2007 would have excluded the period during which SSSR implementation was still ongoing.

The study of Liao *et al.* (2014) examined the privatisation effect of SSSR on SOEs' fundamental performance. Considering 1,032 firms, being 633 SOEs and 399 non-SOEs, over 2005-2007, they found that the output, profit, and employment increased after SSSR, especially for SOEs. Corporate governance and operating efficiency, however, remained unchanged. They suggested that the improved performance of SOEs was due to the boosted stock market incentives from government agents who operate or control SOEs and they benefited from the increasing of market values of state-owned shares. Accordingly, the interests of government and the public investors became better aligned after SSSR. There are no extant studies, and so no empirical evidence, as regards the impact of SSSR on earnings quality as measured via accruals quality, earnings persistence and timeliness. There is restricted evidence as regards the impact of earnings value relevance of this reform (Hou *et al.*, 2015a; Hou *et al.*, 2012; Liao *et al.*, 2014), but those studies neglect the possible impact of IFRS on share price informativeness.

1.3.3 Contributions from theory

Chapter 3 of this thesis discusses agency theory, stakeholder theory, property rights theory and behavioural finance theory. These are considered in the Chinese context to help to support the development of expectations as regard the impact of the SSSR implementation and IFRS convergence. From the theories discussed in Chapter 3, the following key points are acknowledged.

- Local SOE hierarchies[14], both majority own (via large/block shareholdings) and wholly control (as directors and managers) SOEs. There is an agency conflict between the local SOE hierarchies and the minority (private) shareholders in SOEs.
- Local SOE hierarchies were responsible for implementing SSSR on behalf of the Chinese government delivering the desired benefits. There was a classical agency conflict between what was desired by the government, and what best served the local SOE hierarchy.
- Local SOE hierarchies are a dominant stakeholder group – having both majority ownership of SOEs, and being also the management.
- The Chinese government is not only a policy maker, regulator, infrastructure provider and tax recipient, but also a (direct or indirect) shareholder, ultimate master of local SOE hierarchies, and the promoter of significant capital market and accounting reforms.
- The reforms in China, *prima face*, suggest increasing incentives for managers to act efficiently given a transformation of residual property rights arising out of increasing separation of ownership and control, so that greater dispersion of shareholdings control right may lead managerial incentives to efficiency. But given the context of government and local SOE hierarchies may wish to retain ownership and control, then the property rights transition is unlikely to happen.
- In the context of an illiquid and inefficient stock market, managers and majority shareholders are able to pursue their self interest in firms, to the detriment of the minority. Further, they are able to influence and manipulate prices to an extent that would not be possible in a more efficient market setting.

1.3.4 High-level hypotheses

The three phases of SSSR implementation are as discussed above:

(i) Phase 1. Negotiation phase (2005-2006)

(ii) Phase 2. Lock-in period (2007-2008)

[14] The local managers of SOEs, shareholders in SOEs who are government agents or are themselves SOEs (and the managers of those SOEs), etc.

(iii) Phase 3. Market trading of formerly non-tradeable shares.

Local SOE hierarchies were the agents of the central government in implementing SSSR. This agency relationship is discussed in Chapter 3, but, in short: (a) the Chinese central government's intention with SSSR was to bring capital market discipline and efficiency. However, (b) the managers of SOEs had ongoing incentives to (be seen to) succeed at the local level by preserving value in their SOEs and also preserving levels of state control. These incentives applied equally to the managers of non-SOEs, for whom preservation of value and retention of control was equally important. Focusing on the drivers on SOE managers, in this study, it predicted that in phase 1 of SSSR, the negotiation phase, managers had the incentive to drive down earnings and share prices[15]. This was so that firms minimised the compensation they were obliged to pay to external shareholders and also, to avoid possible censure from their (political) superiors for loss of value in the firm. With transition to phase 2 of SSSR, the lock-in period, in parallel with the transition to IFRS-converged CAS, it is predicted that managers had an incentive to drive up earnings and share prices, so that firms received the maximum amount from the sale of shares once the lock-in period end, thereby hoping better to (be seen to) serve the SOE hierarchy. In the post lock-in period (phase 3 of SSSR), once (some) previously non-tradable shares had been sold, it is anticipated that managers had incentives to drive down earnings and share prices again. This was so they could buy back shares at a lower price than that at which they were sold, thus creating gains, whilst maintaining (or re-establishing) government ownership levels.[16] As mentioned above, such incentives applied equally to the managers of Non-SOEs, albeit their concern was success in the eyes of non-governmental investors, rather than the SOE hierarchy. Through a desire to preserve value, make profits in trading previously untradeable shares, and retain previous levels of ownership/control, it is predicted that managers attempted to manage earnings and prices over the implementation of SSSR, and against the backdrop of the transition to IFRS-

[15] More fully, an incentive to manage earnings downwards, and to make sure this manipulation was reflected in share prices.

[16] SSSR was highly driven by the incentives of government agents to boost SOE's financial performance, with a further expectation that it would stimulate an improvement in operating efficiency without fundamentally changing SOE ownership structure (Firth et al., 2010). To maintain SOE ownership, holders of non-tradable shares might have chosen not to sell the shares, or, more likely, sell then repurchase them back. Hence, if shares were sold straight after the lock-in period, then there was a strong incentive to drive down share price to buy back at a lower price.

converged CAS. Table 1.1 summarises the drivers/incentives pertaining to SSSR implementation and transition to IFRS-converged CAS.

Table 1.1: SSSR phases and related management incentive predictions

<table>
<tr><th colspan="2">SSSR</th><th colspan="2">IFRS</th></tr>
<tr><td>2004 and before</td><td>Pre-SSSR implementation</td><td rowspan="2">2006 and before</td><td rowspan="2">Pre-IFRS period</td></tr>
<tr><td>2005-2006</td><td>SSSR phase 1: negotiation period. Managers had the incentive to drive down share price, so that the local SOE hierarchy minimised the compensation it was obliged to pay to external shareholders</td></tr>
<tr><td>2007-2008</td><td>SSSR phase 2: lock-in period: managers had incentives to drive up share prices, so that local SOE hierarchy received the maximum amount from sale of shares once the lock-in period ended</td><td rowspan="2">2007-2010</td><td rowspan="2">Post-IFRS-convergence: Possible influences: (i) EQ-increasing impact of IFRS in general, albeit not universal; (ii) EQ-decreasing under the impact of IFRS-convergence in China: weak legal enforcement, strong management incentives, lack of (minority) investors' protection, heavy government intervention, not a full adoption of IFRS</td></tr>
<tr><td>2009-2010</td><td>SSSR phase 3: post lock-in period and post-sale of SOE shares. Managers had the incentive to drive down share prices, so that the local SOE hierarchy could buy back shares at a lower price than that at which it sold them, thus creating a gain</td></tr>
</table>

Further to this discussion and summary, the following are hypothesised at the high level.

> *H1: In the first phase of SSSR, there is an incentive among Chinese A-share listed firms to drive down both earnings and share prices. As a consequence, earnings and market prices will fall, and earnings quality will be reduced.*

To test the first hypothesis, this study compares the change of reported earnings, share prices and dimensions of earnings quality between 2003-2004, the pre-SSSR

implementation period, and 2005-06, the first phase of SSSR. Both of these periods preceding China's adoption IFRS-converged CAS.

> *H2: In the second phase of SSSR, coincident with adoption of IFRS-converged CAS, there is an incentive among Chinese A-share listed firms to drive up earnings and share prices. As a consequence, and despite IFRS convergence, earnings and market prices will rise, and earnings quality will be reduced.*

To test the second hypothesis, this study compares the change of reported earnings, share prices and dimensions of earnings quality between 2005-2006, the first phase of SSSR (pre-IFRS adoption), and 2007-08, the second phase of the SSSR which coincided with China's adoption of IFRS-converged CAS. It should be noted that there is, by design, overlap/repeated use of a period: the base case period in testing the second hypothesis, 2005-06, is the same as the test period adopted in testing the first hypothesis (as explained above).

> *H3: In the third phase of SSSR, after adoption of IFRS-converged CAS, there is an incentive among Chinese A-share listed firms to drive down earnings and share prices. As a consequence, earnings and market prices will fall, and earnings quality will be reduced.*

To test the third hypothesis, this study compares the change of reported earnings, share prices and dimensions of earnings quality between 2007-2008, the second phase of the SSSR (post-IFRS adoption), and 2009-10, the final phase of the SSSR (also post IFRS adoption). Again, there is overlap/repeated use of a periods: the base case period in testing the third hypothesis, 2005-06, is the same as the test period adopted in testing the second hypothesis (as explained above).

These high-level hypotheses are taken and tested in the empirical chapters of this thesis (Chapters 5 to 8), as adapted to the nature of the investigations performed in those chapters.

1.4 Approach to method

1.4.1 Research approach and structure for this study

Guided by the previous literature, for this study, an empirical approach is adopted. Hypotheses are derived from analysis of the drivers and incentives facing agents, as illuminated by review of the regulatory context, application of theory and findings in the extant literature. These hypotheses are then subject to investigation via econometric analysis of data from real firms.

The period of data selected and obtained for this study is 2003-2010 (inclusive), which covers two years ahead of commencement of the SSSR implementation, the four years of the implementation, and two years after its completion. It also covers four years ahead of IFRS convergence in China, and four years after. The principal means of econometric analysis is multivariate regression, with models and variables derived, adapted and developed out of the literature. In line with the research questions of this study, investigation and analysis is dealt with by chapter as follows:

Chapter 5: Accrual quality
Chapter 6: Earnings persistence, predictability and smoothing
Chapter 7: Loss recognition
Chapter 8: Earnings value relevance

Ahead of these empirical chapters, Chapter 2 gives details of the Chinese setting, whilst Chapter 4 provides a comprehensive literature review on earnings quality in terms of its dimensions, determinants and consequences in general, as well as in relation to IFRS adoption, the Chinese context and SSSR. The empirical chapters are largely self-contained, each covering presentation/development of pertinent questions and hypotheses, method, results and conclusions. Chapter 5, as the first empirical chapter, contains methodological content (e.g. on selection and definition of control variables) that is pertinent to the empirical chapters that follow. Chapter 9 draws together the findings of the study and concludes the thesis. This chapter also deals with difficulties and limitations in the execution of this study, whilst also discussing potentially fruitful avenues for further work.

1.4.2 Division of the study period

In order to address the research questions and hypotheses of this work, the study period is divided into three overlapping sub-periods, as set out in Table 1.2. The first sub-period, 2003-2006, covers the pre-SSSR period and phase 1 of SSSR; ahead of the arrival of IFRS-converged CAS. The second sub-period, 2005-2006, covers the transition to IFRS-converged CAS, and in the parallel, the transition from phase 1 to phase 2 of the SSSR implementation. The third and final sub period covers post-IFRS-convergence and transition from phase 2 to phase 3 of SSSR (its completion). The hypotheses imply that accruals quality, earnings persistence and predictability, timeliness of loss recognition and value relevance will have been impacted upon by these transitions.

Table 1.2: Separation of periods and phases

Sub-period	Transition from	Transition to	IFRS-converged CAS?
2003-2006	Pre-SSSR	SSSR phase 1: negotiation period	No
2005-2008	SSSR phase 1: negotiation period Pre-IFRE-converged CAS	SSSR phase 2: lock-in period Post-IFRS-converged CAS	Transition
2007-2010	SSSR phase 2: lock-in period	SSSR phase 3: free trading of shares	Yes

1.4.3 Non-conventional interpretation of the estimation results

Given the Chinese setting, and the nature of the hypotheses of this study, not only is it necessary to adapt/develop extant models (as will be seen in Chapters 5-8), for a change in perspective in interpretation of the results of the estimation of some of those models is necessary. Table 1.3 provides a summary of conventional interpretations as against those in this study.

Further or contra conventional interpretations are the following:

- Adopting the modified Jones model, this study implies an increase in income-increasing [decreasing] accruals as evidence not only of reducing earnings quality, but also of upward [downward] management of earnings;
- Increased incidence of small positive earnings, conventionally interpreted to signify increased earning management due to upwards smoothing (to avoid a loss), is in this study considered alongside the incidence of small negative earnings – in order to deduce whether smoothing to a small positive is from above or below (i.e., downwards versus upwards earnings management);
- For this research, greater incidence or timeliness of large loss recognition is interpreted as being consistent with downward management of earnings;
- Increasing market value relevance (or returns relevance) of earnings over the period 2004-2008, when the Chinese stock market was relatively illiquid and inefficient, is interpreted as being consistent with earnings (of whatever quality) being reflected in prices, thus also being consistent with managed share prices in the case that earnings are managed.

Table 1.3: Approach to interpretation of model estimations

Model	**Standard/basic interpretation**	**Interpretation in the context of the setting and hypotheses of this thesis**
Accruals (Dechow and Dichev, 2002)	$\uparrow SD \Rightarrow EQ \downarrow$	same
Accruals (modified Jones 1995)	$\uparrow \lvert DA \rvert \Rightarrow EQ \downarrow$ $\uparrow \lvert DA^{+} \rvert \Rightarrow EQ \downarrow$ $\uparrow \lvert DA^{-} \rvert \Rightarrow EQ \downarrow$	same $\uparrow \lvert DA^{+} \rvert \Rightarrow$ upward management of earnings $\uparrow \lvert DA^{-} \rvert \Rightarrow$ income-decreasing EM
Persistence	$\uparrow persistence \Rightarrow EQ \uparrow$	same
Predictability	$\uparrow predictability \Rightarrow EQ \uparrow$	same
Smoothing	$\uparrow smoothing \Rightarrow EQ \downarrow$ smoothing and persistence may give contradictory results; and the parts of the literature interpret smoother earnings as implying greater quality $\uparrow smoothing \Rightarrow EQ \uparrow$	incidence of small positive earnings is considered together with incidence of small negative earnings - to deduce whether smoothing to a small positive is from above or below
Large loss recognition	$\uparrow LNEG \Rightarrow EQ \uparrow$	$\uparrow LNEG \Rightarrow$ downward management of earnings
Timely loss recognition	$\uparrow timeliness \Rightarrow EQ \uparrow$	$\uparrow timeliness \Rightarrow$ downward management of earnings
Value relevance	$\uparrow relevance \Rightarrow EQ \uparrow$	In efficient, liquid market:[17] same In inefficient, illiquid market:[18] $\uparrow intercept \Rightarrow$ increasing share prices (whatever the quality of earnings)

[17] In China, 2009 onwards, after the completion of SSSR.
[18] In China, pre-2009.

		↑ $coef[EPS]$ ⇒ strengthening relationship between earnings and share price (whatever the earnings quality)[19]
Earnings response	↑ $ERC \Rightarrow EQ$ ↑	In efficient, liquid market: same In inefficient, illiquid market: ↑ ERC ⇒ strengthening relationship between earnings and market returns (whatever the earnings quality)[20]

Notes: Throughout this table, "and vice versa" should be taken as implicit. So, e.g. $\left(\uparrow x \Rightarrow y \downarrow\right) \Leftrightarrow \left(\downarrow x \Rightarrow y \uparrow\right)$. ↑ = increasing; ↓ = decreasing; SD = standard deviations of the estimated error terms of the Dechow and Dichev (2002) model; EQ = earnings quality; DA = discretionary accruals estimated by the modified Jones model (1995); LNEG = large negative losses reports; ERC= earnings response coefficient.

[19] Thus, potentially providing evidence that upward- or downward-managed earnings have been reflected in (driven into) prices and so, resulting in upward- or downward-managed prices, respectively.

[20] As footnote 1 (above), but now in relation to earnings and returns.

1.5 Motivation and intended contributions

The objective of this study is to investigate whether accounting information quality was impacted upon by the adoption of IFRS-converged CAS and SSSR in China and if so, how and to what extent. China was using rule-based accounting standards and had a credit-based financial system prior to 2007. The accounting and market reforms in China in the first decade of this century provided a relatively quick transition to a more western-style accounting and financial system. Since then, the accounting standards and SSSR transformation have become fully embedded in China's financial market.

A focus on a single market can minimise the variations of the economic environment when comparing the information quality changes and the previous literature has explored the change of accounting quality in response to IFRS adoption in a single market (Chua *et al.*, 2012; Dimitropoulos *et al.*, 2013; Leuz *et al.*, 2003). The current study is of particular interest for a number of reasons. Firstly, there is China's unique institutional background and emerging financial market stage. China is a centrally controlled economy with a one-party authoritarian political system. Despite having a very fast-growing economy and its integration into the international market, China has many emerging markets characteristics, such as a desire to attract foreign capital, list firms overseas, reduce the cost of preparing multiple sets of financial reports, building a credible accounting profession, and facilitating infrastructure development, Secondly, as the world's second largest economy and the largest emerging one, China is having increasing influence on worldwide financial markets and IASB activities (see, for example Nobes (2009)). As a result, its adoption and implementation of IFRS-converged standards, and their impact, are important issues for accounting academics, practitioners, regulators and policy makers. Third, previous studies on China's IFRS adoption and on SSSR neglected the joint effects between these two reforms (Hou *et al.*, 2012; Lee *et al.*, 2013; Cullinan *et al.*, 2012). In this thesis, it is recognised that SSSR has played an important role in terms of inducing a change of accounting information quality in China – in line with prior studies which have found that quality of accounting information is derived not solely from the quality of accounting standards but also from other institutional factors (Ball, 2006; Paananen and Lin, 2009). This is the first study to investigate change in accounting information quality around China's IFRS convergence conditioned by a change in a key

institutional factor via the implementation of SSSR. The research, therefore, envelopes both of the Chinese reforms designed to deliver a more market-based economy – SSSR, which greatly expanded tradability of shares, complemented by convergence with IFRS, intended better to meet the information needs of investors.

This research investigates accounting quality under the impact of the transition of Chinese accounting and market regimes. Accounting quality is assessed from four perspectives, these being: accruals quality, earnings persistence, earnings timeliness and earnings value relevance. Prior literature has found mixed evidence about the change in accounting quality after IFRS adoption in different countries. The main contribution of this study is to add to this existing literature, which has been silent as regards to the joint impact on earnings quality in China of accounting standards reform and market reform. In particular, this thesis contributes to the existing literature in the following ways.

1. This is the first study to take into account both SSSR and IFRS reforms with a wide range of analysis. This research adds to the literature in terms of accounting quality under the joint impact of the SSSR and IFRS-converged CAS adoption in China, on which prior research has been silent, so missing the compound/confounding effect of this adoption on earnings quality.
2. Earnings quality is investigated across a broader range of dimensions than in previous studies. The existing published research in China has failed to investigate earnings persistence and timely recognition of losses in the Chinese capital market, commonly only probing one dimension of earnings quality. This study considers accounting-based measures of quality, namely accruals quality, earnings persistence, earnings predictability, earnings smoothness, and large loss recognition. It also involves investigating market-based measures, i.e. timeliness of loss recognition, earnings value relevance and earnings response. These accounting-based and market-based earnings quality measures assess, respectively, the reliability and the relevance properties of earnings. This wide/inclusive approach to earnings quality assessment adds strength to the investigation and richness to the findings.

3. The interpretation of model results extends from and in some cases is contra to conventional interpretation. It involves analysing/interpreting results and accounting quality consistent with China's unique institutional and stock market features, for which traditional interpretation of model results is not always sufficient/appropriate. For example, prior research studies investigating the value relevance of Chinese accounting information have simply interpreted results in accordance with usual practice. That is, they have deduced improved earnings quality from an increased association between earnings per share and market share price. This study, in Chapter 8, interprets such an increase in association to support the notion that, in illiquid and inefficient stock markets (as China's markets were for the majority of the study period), earnings manipulations have been driven through to share prices.
4. The unique Chinese setting of widespread state ownership and political control is combined with agency theory, stakeholder theory, property rights theory and behavioural finance theory, with, in Chapter 3, a complex and interesting 'double agency' setting being posited. This setting leads to a coincidence of interests as between the Chinese central government and private investors – since each suffers as a result of a (separate but connected) agency problem with the local SOE hierarchies.
5. The hypotheses tested within this study were formulated based on incentives to local SOE hierarchies arising out of the SSSR process, and on IFRS convergence. The principal focus is, therefore, regulatory/political, rather than the more common one, that of firm-level earnings management incentives and firm-level earnings targets.
6. This study contributes in providing a warning to regulators and policy makers concerning confounding events accompanying standards' development/ adoption. This is also in relation to international and Chinese-domestic investors as regards the earnings quality of Chinese listed firms.

In sum, this study will add further empirical evidence to the accounting literature on the association between earnings quality and IFRS adoption in the context of strong Chinese institutional and country factors. Moreover, the findings will help policy makers, regulators and professional bodies to understand better the effect of accounting and market regulatory reforms in China, thereby facilitating their development of the Chinese accounting regulation and stock market structure. Most importantly, the joint effect of IFRS convergence and SSSR earnings quality is investigated for the first time, as prior studies having concentrated either on IFRS or SSSR reforms and thus, neglected their joint timeline.

1.6 Structure of the thesis

This thesis is divided into nine chapters. As briefly outlined in Section 1.4.2 (above), the remainder of the thesis is structured as follows:

- Chapter 2 discusses the Chinese setting in terms of the institutional environment (political, economic, financial, legal, social/cultural), and the Chinese capital market and accounting regimes. It elaborates upon the IFRS-convergence and the SSSR, and the development and internationalisation of Chinese markets.
- Chapter 3 considers theoretical frameworks – agency theory, stakeholder theory, property rights theory and behavioural finance – and discusses their pertinence and application in the Chinese context.
- Chapter 4 provides an extensive review of the existing academic literature relating to: (i) accruals quality, earnings persistence, earnings timeliness and earnings value relevance; (ii) accounting information quality and IFRS adoption; (iii) accounting quality and the accounting/financial reforms in China; (iv) determinants of earnings quality; and (v) consequences related to earnings quality.
- Chapters 5, 6, 7 and 8 are empirical chapters, investigating, in turn, accruals quality, earnings persistence, earnings timeliness and earnings value (and returns) relevance. Each of these chapters presents detail of relevant method(s) and development of chapter-specific hypotheses. Results and conclusions are provided at chapter level.
- Chapter 9, the last chapter of this thesis, draws together the findings and conclusions from the earlier chapters of the thesis and makes overall observations. The chapter

also covers limitations of the study, and makes recommendations as regards further work.

Chapter 2: China's institutional setting

2.1 Introduction

This chapter elaborates upon the role of institutional factors, as well as the reforms of accounting standards and share structure in 2007 in China. Both accounting regulation and share structure reforms were accommodated by the special circumstances of China's strong political influence on financial market regulation, strong state-ownership concentration, weak accounting and professional management as well as the inertial effect of business tradition and culture factors. This chapter demonstrates how considering institutional factors that affected the level of transition towards full implementation of IFRS is essential.

It is organised as follows. Section 2 provides an overview of China's institutional characteristics, including its: political system, economic system, financial system, legal system and social culture. Section 3 explains China's financial and accounting infrastructure, followed by consideration of the recent SSSR and IFRS reforms. A conclusion is presented at the end of the chapter.

2.2 Institutional environment

2.2.1 Political system

Political forces are the primary determinants of the degree of shareholder diffusion and the relationships among managers, owners, and other stakeholders of the firm, all of which shape the properties of reported financial information (Roe, 2003).

Unlike the multiple-party political model in most Western countries, China, as a socialist country, has had single-party leadership with one legislative chamber since 1949. That is, the political power is assumed by the Communist Party regardless of the existence of a number of minority parties. To maintain one-party control over all the key appointments in government and other major organisations, such as banks, other financial institutions, and universities, China has a parallel hierarchy of party and government leadership at all levels nationally (Cai, 2008; Edin, 2003). The head of state is also the leader of the Communist Party leader and government leadership functions are often intertwined (Cai, 2008). Throughout

the economic reforms since the 1970s, the changes in the political system have been conservative (Heilmann, 2008; Shirk, 1993). Taking into consideration of the unique political structure, the Chinese government seems to have more direct and profound influence on the business sectors compared to the most developed countries (Qian, 1996). The government, as regulator and policy maker, would offer favourable treatment to those firms that had local state or central government as their controlling shareholders, even after 2005 (Wang *et al.*, 2008).

Accounting standards setting and implementation are considered as a political processes in China (Francis *et al.*, 2009; Ezzamel *et al.*, 2007; Xiao *et al.*, 2004). The development of accounting is heavily government driven and largely influenced by a political institution, the Ministry of Finance (MoF). That is, the government has played a dominant role throughout all the Chinese accounting reforms, with financial reporting being heavily influenced by political ideology. Hence, accounting practices in China are closely related to the political ideology and thus, the state's perspective on economic development (Bushman and Piotroski, 2006; Piotroski *et al.*, 2015; Xiao *et al.*, 2004; Fan *et al.*, 2007b; Chaney *et al.*, 2011). Given the vast majority of corporations tightly to national politics, imposing rules and business structures found in advanced economies would be unlikely to produce the reformers' desired results, as corporate governance systems in China do not just involve rules and institutional set ups (Roe, 2003).

2.2.2 Economic system

Consistent with China's socialist political background, from 1949 to the 1970s, SOEs dominated the Chinese economy, which was centrally planned and in public ownership. From the 1970s onwards, the ideology shifted from having a central planned economy to a market oriented one through a series of economic reforms. These proceeded in different stages (Shirk, 1993; Lin *et al.*, 2003), but still under the tight control of the Communist Party of China and the central government. In other words, China's market-oriented economy remained being based on socialist principles. Since the 1970s up until today, the Chinese government has made progress in reducing its intervention in the business sectors, but regardless of this, it has retained its control of corporate governance and accounting practices in order to achieve

its political goals through government controlled SOEs and restructured ones (Wang *et al.*, 2008; Xu *et al.*, 2005).

Initially the Chinese economy was considered to be overcentralised, and the subsequent economic reforms were geared the privatisation of state ownership. In the early stages of Chinese market economy, the government directly controlled and managed most of the SOEs and consequently, their managers had little incentive or managerial authority to enhance economic efficiency, which led to poor performance (Groenewold *et al.*, 2003). Until the early 1990s, even after the establishment of Shanghai and Shenzhen stock exchanges, the government retained control over large SOEs; however, medium and small sized SOEs were allowed to be merged and privatised. In fact, most SOE business operations became no longer subject to state plans, with the exception being large and key ones (Huang *et al.*, 2013). The initial objective of the inauguration of China's two stock exchanges was to raise capital for poorly performing SOEs so as to be able to survive in competition with local private and foreign companies. Stock market regulators in China gave preferential treatment to local and central SOEs by expanding listing privileges based on political rather than economic objectives (Shirk, 1993) The SOEs were allowed to report three years of pre-IPO earnings based on estimations, because they were typically restructured by the parent company immediately prior to the IPO[21] and most the latter of those listed SOEs remained unlisted on the financial market after IPO (Wang *et al.*, 2008). Alongside criticism of government intervention in China's business sector, some studies have also pointed out that such intervention was implemented in most Asian developing states to regulate their local economies and to ride out economic crises, due to the lagged development stage in their domestic countries in comparison with developed Anglo-American ones (Yeung, 2000).

The Chinese economy has been growing rapidly since the economic reforms from the 1970s onwards, consistently exhibiting high GDP growth (Oi, 1995; Groenewold, 2004). The average growth in China's GDP was 9.2% over the period 1989-2013, and even after the recent world financial crisis, this continued to grow at a healthy rate. In 2014, GDP growth was 7.3%, which, took it to over US$10.35 trillion – representing approximately 16.7% of the world

[21] Non-SOEs must have been in operation for three years prior to listing and need to report actual earnings.

economy[22]. In 2015, GDP growth of 6.9% was the lowest in last of 25 years, but higher than the average world-wide GDP growth of 3.3%[23]. The booming Chinese economy has been heavily supported since the 1990s by investment from developed western countries, with the Chinese government having adopted policies designed to attract foreign direct investment (FDI) and encouraging the import of advanced technologies. FDI in China averaged US$ 416.01 billion from 1997 to 2016. In December of 2015, it reached an all-time high of US$ 1262.70 billion and approximately 30% of Chinese growth was export-based. However, foreign investors have had an information disadvantage relative to local investors and thus, there have been demands for China's international accounting harmonisation (Lee *et al.*, 2013).

2.2.3 Financial system

Nobes (1998) proposed that the reason for international differences in financial reporting is due to its different purposes, depending on the financing system. Zysman (1983) distinguished financial markets in capital market based and credit-based systems, where the latter can be separated into governmental and financial institutions. The differences between market-based and credit-based financial systems are presented in Table 1. Under the different financial systems, the purpose of financial reporting relies on their own profit for capital, but the external sources of funds differ. In a market-based financial system, such as that of the US, UK and Australia, the large firms are mainly financed by external shareholders and the control of those firms essentially rests with managers. An agency problem occurs due to the separation of corporate ownership and the management group (Franks and Mayer, 1997), which consequently causes outside shareholders heavily to rely on financial accounting information provided by the management group of the company to assist in their investment decision. IFRS has developed from the marked-based financial system, primarily with the goal of providing fair and balanced information to outside investors (Nobes, 1998).

In a credit-based system, the capital market is smaller in comparison with the market-based one. Companies' funding opportunities are more reliant on whoever grants credit and they are controlled by a small number of large shareholders. Nobes (1998) also described

[22] See http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG and http://www.tradingeconomics.com/china/gdp
[23] http://www.bbc.co.uk/news/business-35349576

credit-based systems as relationship-based ones due to the importance of the relationship between companies and their influential controlling shareholders. The latter have the power to employ and influence the daily management of the companies. This means that under such circumstances, the controlling shareholders and managers are closely tied, such that the agency problems between outsider shareholders and managers are reduced. However, agency problems between closely tied major shareholders and managers and minority shareholders can emerge (Nobes, 1998; Nobes and Parker, 2008; Xiao *et al.*, 2004). The primary objective of IFRS is to provide useful accounting information to outside investors, especially major or controlling shareholders, who are overlooked under a credit-based system (Ball *et al.*, 2000; Ball, 2001, 2006). Hence, the demand for investment decision usefulness for external investors, especially major controlling ones, is relatively low, because the dominant owners have access to detailed internal management accounting information.

Table 2.1: General characteristics of market-based and credit-based systems

Market-based System	Credit-based System
Large firms controlled by managers, but owned by outside shareholders	Firms owned by insider shareholders. who also have control over management
Separation of ownership and control, which engenders agency problems	Little separation of ownership and control and agency problems are rare, but with other problems
Frequent takeovers acting as a disciplining mechanism on company management	Takeover activity is rare
Dispersed ownership	Concentration of ownership amongst a small group of shareholders
Moderate control by a large range of shareholders	Excessive control by a small group of inside shareholders
No transfer of wealth from minority to majority shareholders	Wealth transfer from minority to majority shareholders
Strong investor protection in company law	Weak investor protection in company law
Potential for shareholder democracy	Potential for abuse of power by majority shareholders
Shareholding characterised more by exit than by voice	Majority shareholders tend to have more voice in their investee companies

Adapted from Nobes (1998)

In China, the financial system is under credit-based governmental and financial institutions, which means that the purposes of financial reporting are different to those of capital market-based financial systems (Gillis, 2013). The government has control of both debt and the equity market, with the incentive for preparing financial information being skewed towards contract purposes rather than financial performance (Dai and Chen, 2004; Chen *et al.*, 2008b). This is due to the requirements of IPO, right issues and delisting in Chinese financial market being directly related to the companies' profitability.

First of all, fund resource allocation is under government control. Since 1949, the big four stated-owned banks[24] have dominated the finance industry and played an important role in the Chinese economy. Those four state-owned banks are considered as government agencies and operated under government instructions. In China, policy lending has led to a large amount of nonperforming loans among the government, state-owned banks and SOEs. Moreover, the cheap/non-payback policy loans to SOEs made it difficult to liberalise financial markets (Schlevogt, 2000). After the reforms in banking sector, except for the People's Bank of China, the banks were converted into commercial banks to act as intermediaries between investors and savers, thereby responding to market forces (García-Herrero *et al.*, 2006). However it was unrealistic to expect that the banking/financial institutions could be substantially independent of the government, which also explains why Chinese banks still have low profitability (García-Herrero *et al.*, 2009).

Unlike mature markets, where the stock exchanges are self-regulated entities owned by their members, the two Chinese stock exchanges are essentially government organs (Gillis, 2013). The establishment, administration, and development of both China's stock exchanges are highly government driven. Practically, it retains control over the stock exchange through the China Securities Regulatory Commission (CSRC)[25] , which is tasked with appointing the senior officers and top management group at both exchanges. The split share structure, which divides them into tradable and non-tradable shares, was started in 1993, immediately

[24] Bank of China, Industrial and Commercial Bank of China, Construction Bank of China and the Agriculture Bank of China.

[25] The CSRC is the major market regulator in China, which has been under the direct supervision of the State Council since its establishment in 1992. From 1998, the CSRC inherited regulatory power from the State Council Securities Commission and the People's Bank of China, becoming the official security market regulator, responsible for disclosure, listing requirements and the share classification structure for the stock market.

following the establishment of the two Chinese stock exchanges. The objective of issuing the non-tradable shares is to maintain state control over listed companies (Qi, 2007). Up until December 2004, these shares accounted for over 64% of total shares, that is, before China's Split Share Structure Reform in 2005.

The quotation system was adopted by both stock exchanges up until 2000. Under this system, the approval of a company's Initial Public Offering (IPO) and obtaining a listing was determined by the CSRC on the basis of an annual quota broken down to each province and ministry. Then, these entities would select companies to list on the stock exchanges according to their allocated quotas. Tam (2002) suggested that the listing of a company under the quotation system was decided based on political considerations. In March 2001, the quotation system was replaced by the approval system and the government no longer allocated specific quotas, but instead IPO candidates were under substantial audit in accordance with the relevant regulations drawn up by the CSRC. The requirements for the IPOs, right issues, trading suspension and delisting were in accordance with an accounting oriented administration, thereafter it became important for the IPO candidates to meet the accounting oriented listing requirements to generate sustainable profits (Huang *et al.*, 2013). For instance, the rights issue required listed companies to obtain no less than 6% weighted average return on equity for the latest three years (SZSE); and a company's shares would be suspended, if it operates at a loss for three consecutive years (SZSE). These accounting-oriented listing requirements encouraged listing firms to manage reported accounting information to be able to list on China's stock exchanges, make rights issues as well as avoiding share suspending and delisting

The capital markets system, unexpectedly, induced a strong incentive for manipulating earnings in China, as those reported are the primary basis for IPO, rights issuing and delisting. The reporting incentives were influenced by a certain level of political purpose of achieving higher earnings from SOEs, the accounting contracting role for bank loans and access to the stock markets, rather than the managerial incentives being influenced by the accounting information, as in the Western economies.

2.2.4 Legal system

Compared with many advanced jurisdictions, China's legal system is much younger and underdeveloped, with enforcement being ineffective, which offers little protection to investors (Allen *et al.*, 2005). The cornerstone of good corporate governance and accounting information quality is a well-developed legal system (La Porta *et al.*, 2000).

Previous studies on investor protection legal enforcement show that its strength, to certain extent, affects managers' incentives, accounting misconduct and misreporting is better detected when it is strong. Regarding which, reported earnings quality was enhanced after IFRS convergence in countries, bringing with it strong investor protection (DeFond *et al.*, 2007; La Porta *et al.*, 2000; Jeanjean, 2012; Houqe *et al.*, 2012; Leuz *et al.*, 2003). IFRS is issued by the IASB, which does not have enforcement power over nations that adopted it, but rather, the implementation and enforcement is determined by the accounting profession, security exchanges, and courts of the country where firms are listed (Francis *et al.*, 2005). As principle-based accounting standards, IFRS requires managers and accounting professions to exercise professional judgement in order to present a fair view to outside investors. Low risk of litigation is unlikely to improve the accountability of controlling shareholders, managers, directors, and auditors.

Understanding the legal system of a nation is necessary for comprehending the effects of implementation of IFRS. Given the need to have strong legal support for its implementation, the weak legal system, as in China, is likely to affect the outcome of its adoption.

2.2.5 Social and culture system

Social and cultural mores affect business operations and accounting practices by way of influencing human behaviour and judgement (Fanto, 1996). According to the cultural measures developed by Hofstede and Hofstede (2001), the ties between individuals in China tend to be tighter than in developed Western countries, such as the UK, the US and Australia. These authors described the culture difference in terms of power distance, uncertainty avoidance, and individualism, with the Chinese being more likely to prefer a tightly connected social group that offers protection to them in exchange for loyalty. The collectivist culture is

rooted in Confucian philosophy, which stresses interdependent, stable, and harmonious relationships. These values are greatly reflected in China's unique networks of relationships (guanxi), which dominate business and social activities (Lovett *et al.*, 1999; Lin and Ho, 2009; Campbell, 1987). Guanxi also facilitates the growth of business (Yang *et al.*, 2015).

Luo and Chen (1997) pointed out that guanxi has developed beyond its historical meanings of family relationships to include unrelated individuals on the basis of common interests, which involves the exchange of gifts and benefits. This works based on the unspoken principle of reciprocity and consequently, people take responsibility for each other only within close connection nets, whilst lacking a sense of accountability towards outside parties and the public as a whole. That is, guanxi only benefits people inside its circle and it often penalises people outside it (Statman, 2009). Guanxi further extends to businesses and organisations in regards to related or unrelated individuals. Fan (2002) points out that guanxi involving business people and government officials is at the heart of China's business dealing, which motivates members of Chinese government to take advantage of their positon by acting as intermediaries for people who need to establish business connections and hence, has resulted in widespread government corruption.

Under such a business culture, as some studies have suggested, China's accounting practices are likely to support statutory control, uniform practices, a conservative measurement approach and secrecy, as opposed to those in countries where there is higher accounting professionalism and which thus have lower levels of uniformity, conservatism and secrecy (Merchant *et al.*, 1995; Chow *et al.*, 2006; Fleming *et al.*, 2009; Roberts and Scapens, 1985). In China, a uniform accounting system and accounting policy are at the national level, rather than within individual firms, with accountants and managers being required to respond to various guidelines issued by government agencies (Fu and Tsui, 2003; Chow *et al.*, 1999). Professional education and training for accountants so as to enable them to make independent professional judgements is lacking (Ball *et al.*, 2003; Ding and Su, 2008; Chen and Zhang, 2010) and thus, such judgements, as emphasised in IFRS, is a new concept in Chinese accounting practice. Furthermore, most controlling shareholders of listed companies in China are either state-owned enterprises or government agencies that evaluate the management of listed companies based on reported accounting information, which means

that management incentives are also obligated by government agencies (Tong *et al.*, 2014; Chen *et al.*, 2008b). In addition, CSRC stock market regulations contain specific accounting performance based requirements regarding IPOs, rights issuing, trading suspension and delisting. China's government intervention within listing firms' corporate governance and stock market regulations provides strong incentives for top management to manipulate accounting information[26]. Accountants who lack independent professional judgement and experience combined with guanxi permeates throughout the business community and this is actively promoted by the top leadership to mask the real financial conditions (Zhao, 2013; Chen *et al.*, 2008b).

When IFRS has been imported to a country, the interpretation and realisation of the principles will be also shaped by the local culture. Understanding the characteristics of China's social and business culture will help to explain how this has impacted on accounting practices, which is particularly important when assessing the effectiveness of IFRS adoption.

2.3 Capital market and accounting infrastructure

This section describes China's capital market and accounting infrastructure. The nation has moved its economy from a centrally planned economy to a socialist market economy by gradually reforming its state ownership and control in SOEs as well as establishing stock exchanges to facilitate stock trading (Liu and Tian, 2012).

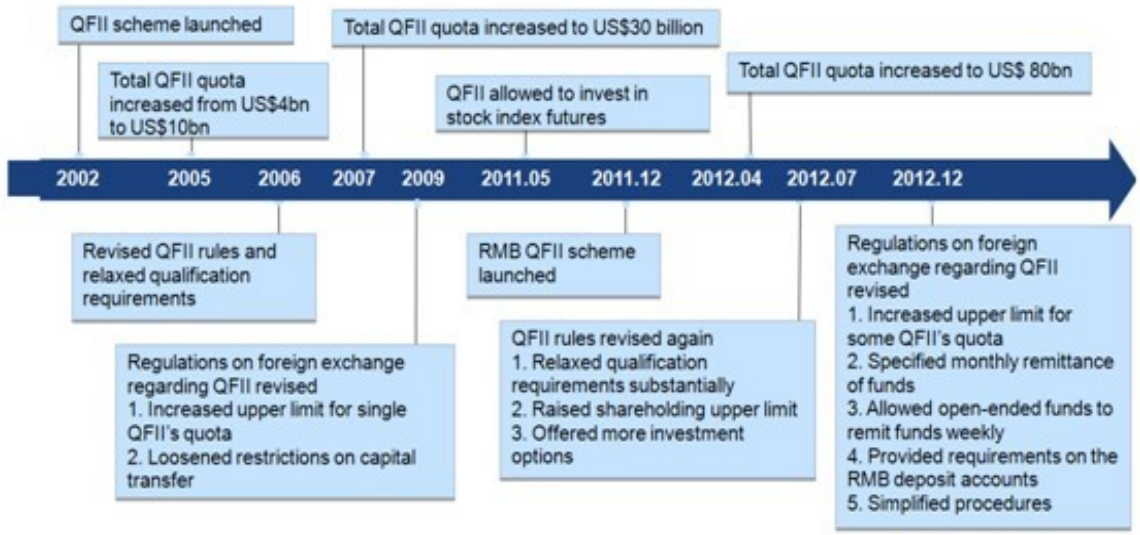
2.3.1 Stock market development

China set up the Shanghai Stock Exchange (SSE) in November 1990 and the Shenzhen Stock Exchange (SZSE) in April 1991, to facilitate equity capital acquisition by Chinese SOEs, speeding up the reform of state owned enterprises and attracting foreign investment (Groenewold, 2004). The listed firms on the SSE and the SZSE were originally only authorised to issue A-shares to domestic investors to protect the government's control over the listed SOEs. Shares are split into tradable and non-tradable shares, with the latter representing a large proportion and are held by the local or central government. The A-shares are only

[26] The World Bank (2009) recommended that the Chinese government implement an awareness programme to motivate top management groups to comply with financial reporting standards on the basis of revealing a range of noncompliance and accounting manipulation of listed firms' financial statements.

available to trade amongst domestic investors to control the capital flow of international hot money for short speculation, hence protecting the stability of the financial market. In 2002, the Qualified Foreign Institutional Investor (QFII) scheme was introduced, allowing foreign investor's direct access to China's capital market. In 2011, RMB QFII was initiated, which allows the use of RMB funds raised in HK by the subsidiaries of domestic fund management companies and securities companies there to invest in the domestic stock market. The subsidiary must obtain the approval of the CSRC and obtain the investment quota approved by the State Administration of Foreign Exchange (SAFE)[27].

Figure 2.1: Progress of Qualified Foreign Institutional Investor (QFII) scheme



In 1992, some listed firms were authorised to issue B shares to foreign investors, including those from Hong Kong, Taiwan, and Macau. These are traded in US dollars on the SSE and Hong Kong Dollars on the SZSE. From early 2001 onwards, B-shares became permissible to trade for investors in mainland China. However, the firms only listing A-shares generally have higher financial quality than those only issuing B-shares (Eccher and Healy, 2000). The liquidity of the B-share market is very poor, and it is difficult for institutional investors to make sizeable investments in such firms (Agnes Deng[28], 2013). As a result, B-

[27] http://english.sse.com.cn/investors/qfii/what/
[28] Head of China Equities at Baring Asset Management.

share firms started to convert their shares into H-shares (see below) due to the more developed capital market in Hong Kong.[29]

The shares issued on the Hong Kong Stock Exchange (HKSE) and on the U.S. Stock Exchange (NYSE) are called H- and N-shares, respectively, and are traded in the local currency. The firms that issued H-shares in the early stage were Chinese state SOEs that had gone through major restructuring designed to satisfy the requirements for international issuance (Groenewold, 2004). The Chinese government selected firms that were considered the most financially sound to list on the HKSE, with most of those also being listed in China's A-share group and on the U.S. stock exchange. The most successful listed firms in China have typically been funded by states banks, and the government retained a majority ownership in them after the IPO (Eccher and Healy, 2000), while private firms are more likely to list on the U.S. stock market through an initial public offering (IPO) or reverse merger[30]due to the great difficulty of their gaining access to capital in China (Gillis, 2013).

Since China opened the SSE and the SZSE in early 1990s, the Chinese financial market has developed remarkably. By the end of December 2015, there were a total of 2,918 listed firms, which included 2,816[31] A share and 102 B share stocks were listed on both stock exchanges, with a total market capitalisation of US$ 6,004,947,670,000, which contributed 58% of China's GDP (World Bank, 2015)[32].

2.3.2 Financial requirements

After the replacement of quotation system by the approval system on the stock market in March 2001, the government no longer allocated specific quotas. However, the IPO candidates were under substantial audit in accordance with the relevant government

[29] www.ft.com: End of the road for China's 'B' market, by Josh Noble, 2013,
[30] Reverse merger, also referred to "backdoor listing", "reverse takeover" or "shell game", is a process whereby a private firm purchases the control of an IPO firm as a "shell" and then merges this "shell" firm with a private firm. At the time of the merger, the IPO firm is actually a non-operating entity that has gone through bankruptcy and is now dormant. Reverse merger listed firms are smaller, younger and riskier than IPO firms (Adjei, Cyree, and Walker, 2008). The research of Lee et al. 2013 shows that Chinese reverse merger firms took up to 85% of foreign reverse mergers on the U. S. stock market between 2001 and 2010, with 52 being accused of accounting fraud among 148 Chinese reverse mergers prior to 2012.
[31] 1,075 from the SSE Main Board, 467 from the SZSE Main Board, 778 from the SZSE SME Board and 496 from SZSE ChiNext.
[32] http://data.worldbank.org/indicator/CM.MKT.LCAP.CD

regulations from CSRC. As mentioned in the previous sections, the requirements for the IPOs, rights issues, trading suspension and delisting are in accordance with accounting oriented administration, which creates strong management incentives for listing and remaining listed on the stock market (Huang *et al.*, 2013; Chen and Yuan, 2004; Haw *et al.*, 2005).

2.3.2.1 IPO requirements

Under the Securities Law, the SZSE listed the requirements for IPO on the Main Board or SME Board[33], which are rather brief:

(1) "It shall have a proper and well-operating organisational structure;
(2) It shall have sustainable profitability and sound financial position;
(3) In the past three years, there have been no falsehoods in its financial statements, and it has not committed any other serious illegal acts; and
(4) Other requirements prescribed by the securities regulatory authority approved by the State Council."

The SZSE further explains that enterprises seeking IPO also should meet requirements prescribed by the CSRC:

(1) "It must have been profitable in the last three consecutive years with net profits no less than RMB 30 million in aggregate; the net profits shall be calculated based on the amount before and after deducting non-recurring profits and losses, whichever is smaller;
(2) The net cash flow from business operation in the last three years shall exceed RMB 50 million in aggregate; or the revenue in the last three financial years shall exceed RMB 300 million in aggregate;
(3) The total share capital before the offer shall not be less than RMB 30 million;
(4) The intangible assets as at the end of the last reporting period (after deducting land use rights, aquaculture rights, mining rights, etc.) shall not account for more than 20% of the net assets."

[33]The Small and Medium Enterprise (SME) Board was established in February 2003, as a major step towards the establishment of a multitier capital market system, to support independent innovation.

Apart from the detailed accounting oriented administration, there were further requirements on what circumstances may have had impact on the sustainable profitability and risk considerations. The IPO profitability and sustainability requirement [34] on the ChiNext[35] is lower than that for Main Board and SME Board. However, the requirements are still focused on maintaining return on equity targets and hence, the managers still tend to manage earnings in response to listing incentives.

2.3.2.2 Rights issue requirement

The requirements for rights issues in China are also based on the accounting information. Under the Securities Law and the requirements for rights issue were promulgated on 7th May 2006 and companies wanting to do so with existing shareholders had to comply with the following:

(1) must have been profitable in the last three consecutive years with weighted average return on net assets no less than 6%; the weighted average return on net assets shall be calculated based on the amount before and after deducting non-recurring profits and losses, whichever is smaller;
(2) the operating profit decline shall not be more than 50% that of the previous year;
(3) the accumulated profit from cash or shares in the latest three consecutive years shall be no less than 30% of total allocable profit.

2.3.2.3 Delisting rules

On the 22nd April 1998, the Chinese stock exchanges adopted "special treatment" (ST) regulation on the listed firms with abnormal financial conditions, which included: the net profits being negative in two consecutive fiscal years; the net assets per share in one recent

[34] (i)It must have been profitable in the most recent two consecutive years, with accumulated profits no less than RMB 10 million and in continued growth; or the issuer must have been profitable in the most recent year with net profits of no less than RMB 5 million and revenues of no less than RMB 50 million, and its revenue growth rate for either of the most recent two years must have been no less than 30%. Net profits shall be calculated based on the amount before or after deducting non-recurring profits and losses, whichever is smaller; (ii) It must have net assets of no less than RMB 20 million at the end of the most recent reporting period with no uncovered losses; (iii) It must have a total share capital of no less than RMB 30 million after the IPO.

[35] ChiNext was embarked upon in the SZSE on Oct 23rd, 2009, as China's second board market. The purpose of ChiNext is to motivate the national strategy of independent innovation and the companies listed in it are hi-tech ones.

fiscal year were lower than the book value per share; auditing firms provided any disagreement with the reported financial statement of the firm; and any abnormal financial behaviour identified and claimed by the China Securities Regulatory Commission (CSRC) or one of stock exchanges in China (Javvin Press, 2008). Listed firms who meet one of the abnormal financial conditions will be classified as ST firms, and have an 'ST' sign before their stock codes.

The designation of ST was to improve Chinese firms' corporate governance and discipline managers by bringing attention to the firms' poor financial performance. The change for ST firms was that the daily price limits[36] were reduced from the normal 10% to 5% and for consistent loss-making for two consecutive fiscal years they could be delisted.

In order to return to normal stock and avoid delisting, ST firms had great incentives to manage their earnings. Interestingly, there have only been two companies that have been delisted since the ST system started in 1998[37], and many ST shares soared in the long term after experiencing a short term drop (Eger *et al.*, 2007). Moreover, in 2007, a number of ST stock listed companies changed back to normal share listing due to debt restructuring (Song, 2012). Regarding which, whether the IFRS-converged CAS improved reported earnings quality in ST firms owing to their earnings management incentive and their abnormal financial performance is hard to tell.

2.3.3 Accounting infrastructure

After 1949, China's accounting practices were developed based on the concept of funds and sources application and allocation, where the corresponding relationship between fund applications and fund resources had to be strictly maintained and specific funds were only to be used for specific projects. Under a planned economy system, the government strictly controlled the prices of commodities and the resources and goods distribution were pre-planned, Market-based accounting principles, including accruals, accounting consistency,

[36] Chinese stock exchanges adopted daily price limits. A normal stock price is allowed to move upward and downward of 10% from its previous day's closing price within a single day, whilst ST firms' stock prices are only allowed to change in a maximum range of 5% within a single day. China adopted daily price limits from 1996 in order to stop stock price manipulators. China Daily (5th Dec, 2001,) reported that before China's price limits were reinstalled, the trading volume at the end of the day was much heavier.

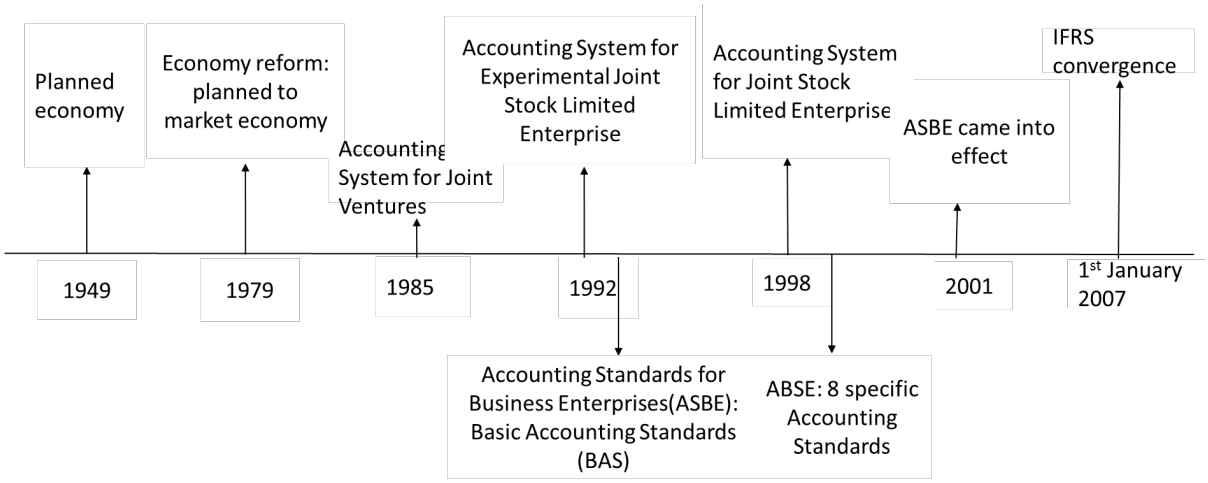
[37] http://finance.sina.com.cn/stock/s/20130621/034015865022.shtml

revenue recognition, historical cost were adopted, but never practised, under China's central planned economy before the main economic reform in 1979.

Following this reform, the government launched a series of accounting reforms towards internationally acceptable ones. The first accounting reform in 1985 was under the consideration of the need for foreign investors to consolidate Chinese business operations with their parent financial statements. That is, the Chinese MOF promulgated the Accounting System for Foreign Joint Venture, which was largely referenced to international accounting practices, as balance sheet preparation, historical cost application, and revenue recognition. Further, in response to the rapid growth of foreign investment in the early 1990s, the MOF issued the Accounting System for Foreign Enterprises to replace the Accounting System for Joint Ventures, which for the first time allowed the provision for possible losses arising from doubtful debts and stock. In 1992, after the establishment of the two Chinese stock exchanges, the MOF issued the Accounting System for Experimental Joint Stock Limited Enterprise since new information user groups emerged from the listed enterprises, which for the first time required enterprises to provide a balance sheet, income statement, and statement of changes in financial position. Moreover, the classification of assets, liabilities and equity were to be in with international accounting practices, at the first time for domestic firms. In 1998, the Accounting system for Joint Stock Limited Enterprises officially replaced the Accounting System for Experimental Joint Stock Limited Enterprise, which meant taking a closer step towards international accounting practices. In January 2001, the Accounting System for Business Enterprises (ASBE) came into effect, which aimed to achieve the desired uniformity and comparability in accounting regardless of ownership structures and industries, except for small businesses and financial institutions. The ASBE expanded the prudence accounting principle and stressed the needs of other information users besides the government (Xiao *et al.*, 2004). The Chinese government was the main accounting information user, but as it gradually reduced its direct involvement in the business sector, the information needs of non-government users increased accordingly. In 1992, ASBE identified investors, creditors, government agencies and the public as the user groups of accounting information. This was the first time the accounting standards in China acknowledged the information needs of users other than government agencies. The ASBE in 2001 represented a comprehensive effort at international harmonisation. In 2006, the MOF issued new Accounting Standards for Business

Enterprises, which is considered to be substantially in line with IFRS. This includes one new basic standard and 38 specific accounting standards applicable to enterprises established in China.

Figure 2.2: Timeline of accounting reforms in China



Over the last three decades, Chinese accounting has gradually converged towards international accounting standards; however, the process has been dominated by the Chinese government and this strong political influence in the business context represents a unique feature.

Firstly, Chinese regulators maintain a conservative attitude towards fair value measurement and professional judgement, which are essentially at the centre of IFRS; however, the former is allowed for debt restructuring, Secondly, Chinese accounting regulators have a different view of business combination and have developed alternative accounting methods for those transactions. IFRS only allows the acquisition method of accounting for business combinations, whereas CAS has created two different methods for this: the pooling of interest method for transactions involving entities under common control and the purchase method for transactions involving entities not under common control. Furthermore, there is the exemption of related party transaction information disclosure for SOEs. The partially adopted fair value measurement, different business combination methods, and the exemption of SOEs from related party transaction disclosure reflects how IFRS convergence in China has been determined by local political and economic factors relating to

the need for industrial reorganisation, rather than to meet the requirements of the global capital market (Baker *et al.*, 2010).

Table 2.2: Key differences between IFRS-converged CAS and IFRS

IFRS-converged CAS	**IFRS**
Only allow the cost model for measurement of fixed assets and intangible assets	Allows a revaluation model
Land use rights are classified as intangible assets. The cost model is applied	The land use rights are classified as operating leases and restrict to fair value
Jointly controlled entities, only allows the equity method of accounting	Also allows proportionate consolidation
The reversal of all impairment losses	The reversal of only the impairment of goodwill
State controlled entities are exempted from related parties transaction information disclosure	No exemption for state owned entities
Biological assets measured under the cost model	Fair value measurement applied
Cover reverse acquisitions under business combinations involving entities under common control	Does not cover reverse acquisitions

Throughout all of China's economic reforms, the government has maintained its dominant position. It is still an important information user as either a major or controlling shareholders of restructured SOEs even after SSSR. Moreover, as the regulator of the business sector, satisfying its information needs still remains a priority of the accounting practices in China (Wu and Petal, 2014). Furthermore, the accounting profession is largely government regulated. The government imposes it administrative influence over the accounting profession in licensing of accounting firms and firms' day to day operations through its agencies, including the MOF, CSRC, and the Chinese Institute of Certified Public Accountants (CICPA) (Tang, 2000). IFRS is principle-based and demands extensive professional judgement to present a true and fair view of the performance of an entity, which requires highly professional accountants, quality auditors, and effective enforcement. China still lacks such infrastructure to make IFRS work as intended.

2.4 Recent stock market and accounting reforms

There were two reforms around 2007: Split Share Structure Reform (SSSR) on the stock market and IFRS adoption. This section sets out the details and possible outcomes of SSSR and IFRS convergence under China's institutional environment.

2.4.1 Split Share Structure Reform

After the establishment of Chinese stock market in the early 1990s, the Chinese Securities Regulatory Commission (CSRC) imposed a split share structure in May 1992, which divided the shares into non-tradable and tradable. The main reason for issuing non-tradable shares is the government's concerns about state-assets reduction and so, it has attempted to maintain state control over listed firms (Oi, 1995). Prior to SSSR, state shareholders mainly held non-tradable shares that could not be freely traded in the stock market. So historically, individual shareholders were the dominant shareholder group in the tradable share market. As a result, the movement of share price was generated mainly among those individual shareholders.

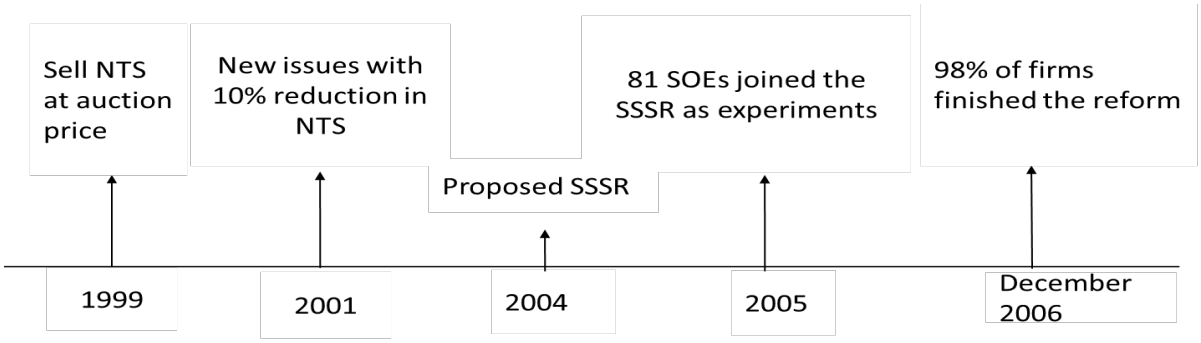
The split share structure caused a conflict of interest between tradable and non-tradable shareholders in respect of the following. Firstly, large state shareholders that normally held non-tradable shares were not concerned about listed firms' financial performance, because the shares they held were not tradable in the financial market and hence, share price movements in the stock market did not affect their wealth (Allen *et al.*, 2005). Secondly, government intervention caused speculative investment behaviour by individual shareholders (Wang *et al.*, 2008). It promoted policy-oriented speculative investment behaviours due to the SOEs continuously receiving various forms of government support and the expected government bailouts in times of SOEs facing financial difficulty to prevent them from delisting. Hence, individual shareholders exhibited a highly speculative tendency with a short investment horizon (Chen *et al.*, 2010a). Finally, there was the agency problem between major shareholders and minority investors. Unlike in a market-based mature financial system, the main agency problem in China was the expropriation of minority interests by controlling shareholders with the concentrated ownership structure, which gave them considerable power so as to able to dominate company decisions and benefit themselves at the expense of minority shareholders' interests (Xu *et al.*, 2005; Faccio *et al.*,

2006); Zou et al 2008). Most listed companies in China were restructured from former SOEs, with the parent groups serving as their largest shareholders, which created strong business and personnel connections between the listed companies and their parent ones. Related party transactions (lending, borrowing, related party sales) amongst the unlisted parent and their listed subsidiary was the main method used by controlling shareholders to quell minority shareholders' interest (Aharony *et al.*, 2010). Peng and Bewley (2010) estimated that more than 80% of listed firms were involved in related party transactions in some years. Those trundling or propping activities in these firms undermined the financial reporting quality and the public confidence in the stock market.

To settle the issues caused by the split share structure, since 1998, the CSRC has proposed some schemes and regulations to enable non-tradable shares to be traded in the financial market to solve the problems of capital shortage in SOEs, to allow allocation of capital raised from the stock market to the SOEs' government funds and to dump state shares on public investors (Yang *et al.*, 2015). In 1999, the CSRC selected 10 listed A share firms with non-tradable shares and tried to sell these shares to existing shareholders at an auction price. This price was based on the firms' net assets value, but it was too high for investors to purchase, so the CSRC had to terminate the reform. Following this, in June 2001, the CSRC proposed another reform, which required new share issues and a 10% reduction in state owned non-tradable shares, however, the stock market declined sharply three months later, falling into an extraordinary bear market, so the CSRC had to halt the reform in 2001.

Based on these reform attempts, CSRC gained reform experiences. On 2nd February 2004, the idea of the SSSR was brought up at the of the State Council on Promoting the Reform and Liberalisation and Stable Development of the Capital Market, which was known as "Nine Provisions of the State Council ". It was held that the reform should respect the rules of the market and exercise diligence in protecting the rights and interests of investors, especially public investors. The SSSR was proposed in April 2005 and four medium sized listed firms adopted it as a pilot. In June 2005, another 42 listed firms announced the reform and 81 SOEs instigated it by the end of 2005. By end of 2006, the vast majority of firms (96%) had completed it.

Figure 2.3: Progress of non-tradable shares reform



The proposal under the SSSR was that companies or major shareholders should compensate about three shares for every ten to tradable shareholders so as to make all non-tradable shares tradable[38]. The compensation agreement was negotiated between tradable and non-tradable shareholders, with larger SOEs often offering higher compensation. Tradable shareholders could accept or reject the compensation offer. If the existing tradable shareholders rejected the offer, then the reform would be delayed until both parties had agreed upon it. The procedure of turning non-tradable shares into tradable lasted for 24-36 months. The procedure of SSSR was designed to prevent steep decreases in share price due to a large supply of shares transferring from being non-tradable on the stock market at one time.

It has always been a priority for the CSRC to improve governance quality and the marketability of state-owned and legal entity-owned non-tradable shares with respect to the ownership structure reforms. China's SOEs reforms have become the core of its transition to a market economy (Qian, 1996). To overcome the issues raised from the split share structure, China's Split Share Structure Reform (SSSR) is considered as a landmark event in China's financial liberalisation and marks as a major change in the institutional setting on the Chinese stock market (Firth *et al.*, 2010). Given the agreed compensation scheme, this enabled the conversion of non-tradable state-owned shares into being tradable ones.

Prior to the SSSR, the majority shares in the Chinese stock markets were non-tradable, comprising 64% of the total in December 2004. Hence, only 36% of the shares were owned by individual shareholders at that time and it was difficult for these shareholders to obtain

[38] http://www.chinadaily.com.cn/bizchina/2006-03/17/content_543440.htm

information from listed companies or to be involved in the decision making process (Lin *et al.*, 2003). As mentioned above, by December 2006, 96% of the listed firms had completed the reform (Qi 2007). However, whilst the completion of the SSSR did transfer non-tradable shares into being tradable, this did not necessarily involve changes in the ownership structure and being property under state control. The reform was highly driven by the incentives of government agents to boost SOEs' financial performance. That is, the expectation was that the SSSR would stimulate the incentive of government agents to improve SOEs' operating efficiency without fundamentally changing their ownership structure (Firth *et al.*, 2010) In other words, the shareholding structure is still characterised as state dominance, simply because the majority of listed companies are restructured SOEs and the state is the largest shareholder. As a result, the majority of listed firms are still directly or indirectly controlled by the government. The fundamental fact of maintaining government ownership structure in listed SOEs makes the intended outcome of SSSR debatable in terms of whether those non-tradable shares became truly tradable, even if technically so, on the financial market (Wu and Patel, 2015). Yang *et al.* (2015) emphasised that SSSR cannot be considered as a full privatisation, because it only involved transforming non-tradable shares into tradable ones, which meant state owned shares, whilst being tradable, were not necessarily going to be traded.

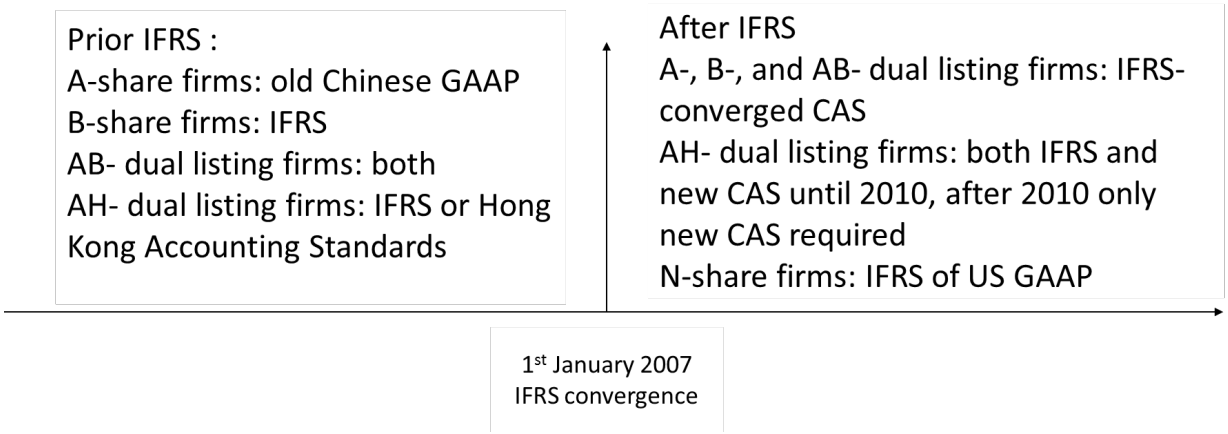
The empirical evidence on the impact of the reform is still not clear. The investigation into SSSR has been generally isolated from IFRS impact regardless of the fact that most firms finished it (96%) by end of 2006 and the IFRS convergence mandate was from 1st January 2007, which meant that the repercussions of both reforms were to some extent contemporaneous.

2.4.2 IFRS adoption

On top of the SSSR, IFRS convergence became mandatory for all the Chinese firms listed on mainland stock exchanges from 1st January 2007. Prior to this, firms offering A-shares to domestic investors were required to report their accounting information under the old Chinese GAAP; firms issuing B-shares to international investors were required to use IFRS; and firms with both A- and B-shares were required to do both and prepare two sets of financial statements. H-share firms were required to report under either Hong Kong Accounting Standards or IFRS, whilst those with both A- and H-shares were required also to prepare

financial statements according to the old GAAP. Since 1st January 2007, all firms listed on Chinese stock exchanges have been required to prepare their financial statements in accordance with IFRS-converged CAS. Firms with both A- and H-shares were; however, required to provide also accounting information compliant with both IFRS and IFRS-converged CAS up until 2010, when the need for IFRS financial statements was lifted.

Figure 2.4: Frim classifications: old GAAP VS new CAS



China's IFRS convergence is not yet complete, but the new Chinese Accounting Standards (CAS) is converging towards it. There are concerns from other countries and academies about whether China's new CAS is truly convergent with IFRS, especially regarding related party transactions and disclosure, reversal of impairment of depreciable assets, and government subsidies (Taub, 2006). Ding and Su (2008) suggested that, whilst the contents of new CSA has now substantially converged with IFRS, the current accounting regulations continue to depart from it, given the unique Chinese institutional setting, as discussed in previous section, including: exemption of SOEs from related party transactions and a conservative attitude towards fair value adoption. That is, fair value measurement has only been applied to investment property, biochemical products, and debt restructuring where regulators recognise an active market exists for fair value to be reliably determined and verified. There are different accounting methods for business combination and asset impairment is different from IFRS, i.e. impairment of long-term tangible assets is considered as permanent and recovery of impairment on depreciable ones is not allowed. The different requirements under IFRS converged CAS from real IFRS can be attributed to China's unique institutional environment, under which, the government is continuing to play a dominant role

in accounting regulation and practice. That is, it still is the principal player in the Chinese economy despite multifarious economic reforms during the last forty-years (Ding and Su, 2008; Xiao *et al.*, 2004; Chen *et al.*, 2008b; Bushman *et al.*, 2004). The government still controls almost all large listed companies and most resource allocation channels, especially banks and the equity market. It played both "referee" and "player" throughout the accounting reforms. The IFRS convergence in 2007 was seen as a priority government interest (Wu and Patel, 2015) and it was in control of how this would take place.

Convergence in China gave more scope for professional judgement. That is, the change from the rules-based old Chinese GAAP to the more flexible principle-based new CAS allowed for a certain degree of subjective judgement, which consequently implies excessive earnings management. Further, information disclosure requirements placed on the SOEs (related party transactions between SOEs and their subsidiaries) remains unchanged from the old GAAP. SSSR encouraged SOEs to boost their financial performance and IFRS convergence permitted more professional judgement on accounting practice, but related party transactions by SOEs remained free from disclosure to the public. Hence, it is questionable whether China's IFRS convergence could work properly in markets disciplined mainly by state regulators, rather than market mechanisms. Moreover, the extent to which accounting practice was determined by accounting standards, or IFRS adoption, as happened in 2007, was hindered by collusion between the government and listed SOEs, with the former encouraging the latter to engage with earnings management incentives to improve financial performance[39].

2.4.3 Earnings quality under special Chinese context, SSSR and IFRS adoption

Jiang *et.al* (2009) argued that efficient government regulation can have a real, positive effect on the economy as whole and is able to assist markets to establish a well-functioning mechanism which puts social resources to the most effective use. At the same time, there is a need to give the market mechanism itself room to function in an orderly, competitive environment in order promote economic efficiency. It is central government's goal to

[39] Chen, X., Lee, C.-W.J. & Li, J., 2008b. Government assisted earnings management in China. *Journal of Accounting and Public Policy,* 27(3), pp. 262-274. Chen et al. found that collusion between local/central government and listed firms in earnings management exists mainly in listed SOEs.

establish a market mechanism which results in a high level of economic efficiency. The central government/CSRC of China had, indeed, proposed various non-tradable share reforms well before 2004, but these had not succeeded (see 2.4.1).

Following completion of SSSR implementation and IFRS adoption, whether or not economic efficiency actually was (or has been) enhanced is questionable – since the incentives and intentions of central government may not be shared by other parties involved. Indeed, these other parties may have quite different or competing incentives. Those parties with the stronger direct involvement in the implementation of the SSSR, not necessarily central government or CSRC, may well obtain (or engineer) the outcomes aligned with their incentives and desires desire get results that are better suited with their desires.

As discussed in section 2.4.1, the SSSR is applicable only to firms with non-tradable shares in issue. The majority of such firms are SOEs; and within those SOEs, other SOEs, state-related bodies and agents own the majority (or all) of the non-tradeable. Consequently, the majority, controlling shareholder groups held shares which could not be traded on the stock market. Those shareholders (largely individuals) holding tradable shares, albeit the dominant shareholder group in the tradable share market, were minority shareholders. The conflict of interests between majority and minority shareholders pre-SSSR were: (i) majority shareholders holding non-tradable shares showed less concern about firms' share price movements since movements in the stock market did not affect their wealth (Allen *et al.*, 2005); (ii) minority shareholders exhibited highly policy-oriented and short-term-speculative investment behaviours (Chen *et al.*, 2010a); (iii) the expropriation of minority interests by majority/controlling shareholders via an appointed management group which gave majority shareholders privileges to access company's inside information, influence financial decisions, and benefit themselves at the expense of the minority (Xu *et al.*, 2005; Faccio *et al.*, 2006; Zou et al 2008). The majority shareholders and managers, being the chief implementors of the SSSR for SOEs, had both the incentive and the opportunity to manage firms' SSSR-implementation and financial performance for their own benefit, rather than pursue the central government's goal of improving economic efficiency. Minority shareholders, albeit with their own wealth incentives, were far less powerful, and played a rather more passive role.

In circumstances of potential common/mutual benefit as between majority/controlling shareholders and their appointed management group, the managers had pronounced incentives to manage earnings so as to maximise benefits for themselves and majority/controlling shareholders through the SSSR, at the expense of minority shareholders' interests. Further, IFRS, being principles-based standards with much latitude for management discretion, are far less prescriptive than China's rule-based GAAP. Further, under IFRS-converged CAS, SOEs are exempted from disclosure of related-party transaction information, and fair value measurement is problematic given that financial markets are dominated by government interests. China's convergence towards IFRS in 2007, therefore, may have had the unintended consequence of giving majority/controlling shareholders and managers greater latitude for earnings manipulation during the period of SSSR implementation.

Given China's partial IFRS adoption, SSSR related management incentives, government control in the financial market, low regulatory enforcement and guanxi culture permeating into business operations, the potential to follow the accounting standards robustly was unlikely to happen. Hence, studying the impact of accounting standards on reported information quality in line with the approach of international scholarship could not give a complete picture of the Chinese context (Bushman and Piotroski, 2006; Piotroski and Wong, 2012; Piotroski *et al.*, 2015; Ball, 2006).

2.5 Conclusion

China's economy has undergone an incredible transformation over the last four decades, including the introduction of public equity markets and the embracing of many Western style market arrangements. The market development, along with the arrival of foreign capital, has created a demand for better information on China's listed firms. However, the attributes of China's institutional setting that militate against this are likely to continue in the foreseeable future (Ding and Su, 2008). The Chinese market is still tightly regulated after much economic reform, with the Chinese government remaining as the principal player in the economy. The role of political connections and incentives, the state ownership of the majority of listed firms, and the concentrated share structure, have remained pretty much unchanged over this same period (Wu and Petal, 2014). This, coupled with the underdeveloped legal system and a culture preference for relationship-based transactions, has led to conflicts of interest among

market participants. A higher public financial information quality would require a shift in the abovementioned institutional arrangements, not just in the accounting standards and financial market regulations, but also regarding the political, legal and financial systems. (Ball, 2001; Piotroski and Wong, 2012; Piotroski *et al.*, 2015; Xiao *et al.*, 2004).

While China is moving towards higher market liberalisation and internationally acceptable accounting practices at the practical level, the changes at the institutional level have been largely superficial. The mismatch between the desire for market liberalisation and international regulatory adoption and the Chinese institutional environment is likely to continue, which will compromise the effectiveness of SSSR and IFRS convergence (Ding and Su, 2008). SSSR is one of the unique features of the Chinese financial market, whether it has been a success is debatable owing to the remaining share structure after its implementation. Whether the non-tradable shares become practically tradable or only technically so in name in the market is an unknown, because this depends on the degree to which the state wants to remain in control. Furthermore, the SSSR aim of encouraging SOEs managers to take into consideration financial performance will boost the management incentives for them.

In general, IFRS adoption has been predicted and tested to improve earnings quality in most developed economies. Incontestably, China, as a fast-growing emerging economy, is also characterised by significant government involvement and control in the financial market and accounting regulation and practice, with lower law enforcement, personal networks and domination of Guanxi in business operations. All of these factors will have a major impact on the outcome of higher earnings quality after China's IFRS adoption, not to mention, the new CAS only being partially converged with IFRS, rather than being adopted in full. Hence, in the Chinese context, the simple prediction that the adoption of IFRS-converged CAS would lead to improved earnings quality does not hold. This is, inter alia, because the confounding factor of the SSSR, to a certain extent, has encouraged earnings management incentives by listed SOEs, which could be undermining the reported earnings quality in the post-IFRS convergence era, regardless of whether China's IFRS convergence has been a success or not.

Chapter 3: Theoretical framework

3.1 Introduction

This chapter discusses theory and develops insights through which to contextualise SSSR implementation and IFRS convergence on earnings quality in the context of China's unique institutional setting. The chapter considers, in turn, agency theory, modern property rights theory and behavioural finance, then drawing together pertinent aspects for this research.

Agency theory is focused on the relationship and relative interests of agents (being firm's managers/directors in the common business setting) acting on behalf of principals (firm shareholders), highlighting the agency problem and associated agency costs when the latter cede authority to the former. Property rights theory, on the other hand, supports the notion that the separation of ownership and management improves economic efficiency. Behavioural finance theory holds that markets are (to a significant extent) inefficient, since market participants' actions are based in human psychology rather than strict adherence to classical rationality, then associated issues with availability and usage (perception) of information and the information content of prices are strongly influenced by human psychology. With this perspective, behaviour and actions are influenced by emotions, biases and illusions, which cannot be rationalised. For this study, these three theories are considered together to assist contextualising and hypothesising the outcomes from China's recent accounting and finance reforms. This chapter continues as follows: section 3.2 outlines the research philosophy and framework adopted by this study; section 3.3 discusses agency theory; section 3.4 explores property rights theory; and section 3.5 addresses behavioural finance theory; finally, section 3.6 considers the theories together and proposes the hypotheses in the context of this study.

3.2 Research philosophy and framework

Extended from Burrell and Morgan (1979), Laughlin (1995) argued that there is actually a five-part schema related to ontology, human nature, nature of science, epistemology and methodology in the multiple nature of the social science continuum. Research theory involves discussions as to how to view the nature of the world (ontology); what constitutes

knowledge either past or present and how it relates to the current focus of investigation (epistemology); and how to define the nature of discovery methods (methodology).

Ontological considerations

Ontological Assumption: **Objectivism** – Ontological views concern the ways in which we see reality: (Saunders and Lewis, 2012). The study of Burrell and Morgan (1979) suggested that there are two major ways of viewing the world: objectivism and subjectivism. Objectivism is the view that "asserts that social phenomena and their meaning have an existence that is independent of social actors" (Bryman, 2008a, p.22). In the view of objectivism, there is only one truth (or a limited number of universal truths) and the truth is measurable. Hence, in the paradigm of objectivism, the response to the question of "how we see the reality" is that there is a singly objective truth affected by a consistent set of laws. Alternatively, subjectivism argues that "reality is created internally through [the responses/interactions of] actors" (Bryman, 2008). Subjectivism suggests that the world is widely subject to various interpretations and that measurement is not always possible or accurate. In the perspective of the subjectivist paradigm, there is no such thing as one single objective truth, rather a number of subjective truths. Those who believe that there is a single objective truth (or set of universal truths) and that the truth can be tested or measured numerically are commonly referred to as positivists; those who believe there is no reality other than that which individuals create internally via their own opinions/interpretations are referred to as constructivists or interpretivists. Under a maintained assumption that there is a single truth or set universal truths, it may be held that truth(s) can be discovered by collecting measurement and testing in neutral and objective research, providing unbiased knowledge in a positivist manner.

Epistemological considerations

Epistemological Assumption**: Positivism** – Following the above discussion, after determining the ontological view of *the nature of reality*, the research paradigm can then move to the epistemological consideration of: *how do we obtain knowledge about reality* (Bryman and Bell, 2007). Epistemology "concerns the question of what is/or should be regarded as acceptable knowledge in a discipline" (Bryman, 2008b, p.16). Therefore, the choice of

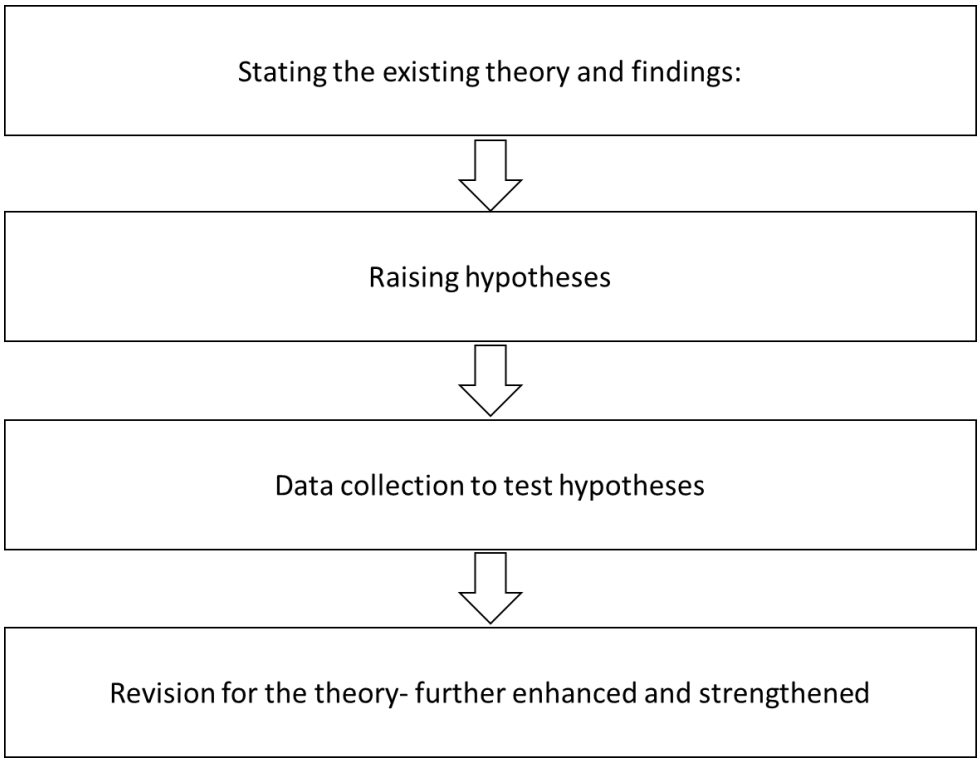
epistemological approach should be in line with the choice of ontological assumption (Easterby-Smith *et al.*, 2012). Having taken objectivism as the ontological view for the present study, the choice of epistemological approach is positivism. This stands in terms of an observable, measurable and quantifiable perspective framed by objective, scientific and experimental traditionalism, which thus fits with the ontological view of seeing reality (Collis and Hussey, 2009). In the field of earnings quality investigation, most of the studies have adopted a positivist stance. Pure positivism contends that, given sufficient resource, everything can be measured and quantified; albeit this is, clearly open to challenge in practice.

The positivist approach can involve pitfalls, and unreliable/invalid results, if the method is not correctly selected and applied, and/or, if care is not taken as regards to the measurements. There is a constant challenge, therefore, to ensure well-founded model development and deployment, careful data collection and handling, and thoughtful interpretation.

Axiological and methodological consideration

Having adopted positivism as the epistemological assumption, consideration of the research paradigm moves on to the specific approach. Research approaches can be categorised into two types, inductive and deductive (Bryman and Bell 2007). For this thesis, a deductive route is taken. A standard deductive approach is primarily based on existing theories or others' findings in order to provide supportive justification in raising hypotheses. Having arrived at the hypotheses, the approach of this research follows a typical deductive style (Figure 3.1).

Figure 3.1: Flow chart of deductive research



The deductive, empirical research method has been of considerable importance to the accounting academic community and has taken central stage since the early 1970s (Laughlin, 1995). Jensen (1976) contended that accounting research should be conducted with a positivist epistemology and empirical research methodology, arguing that "a positive accounting theory which will explain why accounting is what it is, why accountants do what they do, and what effects these phenomena have on people and resource utilization." Developments in financial economics, the formulation of the efficient market hypothesis and agency theory have, *inter alia*, created a context ripe for the application of positive accounting theory and the deductive empirical research method by accounting academics (Laughlin, 1995).

The following sections 3.3, 3.4 and 3.5 discuss the existing theories, and section 3.6 covers the development of the high-level hypotheses of this study. Empirical work, with full details of study design, is set out in empirical chapters 5 to 8 (inclusive).

3.3 Agency theory

Agency theory has emerged as the dominant paradigm in the financial economics literature since Ross (1973) and Jensen and Meckling (1976). As developed by those studies, it was primarily concerned with the relationship between managers and shareholders. An earlier study by Berle and Means (1932) suggested that separation of ownership and control is a typical feature of modern corporations. Without using the term "agency theory", they first showed a keen awareness of the concerns of modern agency theory and stated that the separation of ownership and control may eliminate the checks and balances that owners once had over management. Jensen and Meckling (1979) elaborated that the modern, diffuse ownership corporation is intimately associated with the agency problem, because of the separation of ownership and control, whereby the diverging interests between shareholders and managers result in a nexus of contracts among these parties in order to minimise the conflicts of interest.

So, agency theory concerns the relationship between principals or the owners of firms and their agents, the managers, with an agency problem rooted in the separation of ownership and control in the modern corporation structure (Fama and Jensen, 1983b; Jensen and Meckling, 1976). When a principal assigns substantial decision making power to an agent, the latter may not always exercise that power in the best interest of the former and hence, there is an agency problem and agency cost arises. The agency problem is typified by circumstances of asymmetric information (the agent has information further to and better than that of the principal); bounded rationality (an inability, in a complex world and with limited time and other resources, for agents perfectly and consistently to optimise on behalf of their principals – whatever their best intentions); and moral hazard (that agents act largely in circumstances unobserved by the principals they serve, and are not commonly subject to censure for divergence from the best interests of the principals). Jensen and Meckling (1976) defined agency costs as the sum of: (i) monitoring costs - costs incurred to monitor alignment of the agent's actions with the principal's best interests, e.g. audit, non-executive directors and committees, etc.; (ii) costs incurred voluntarily by agents to demonstrate their pursuit of the principal's best interests (e.g. shareholder briefings, newsletters, provision of easy share-trading terms, etc.); and (iii) residual costs – costs not covered by the foregoing. Further,

contracting costs are also recognised a substantial contributor to agency cost – being the costs of negotiating and drafting agency contracts, proscriptive and prescriptive contract terms as well as the rewards/inducements to act as the principal(s) desire, e.g. performance-related salary/reward structures, bonuses, share options, etc. In modern corporate structures, there are commonly a large number of diverse shareholders (principals), who are not involved in decision making; with directors (agents) appointed to act on their behalf. In accordance with the above, principals aim to limit divergence from their interests by establishing appropriate incentives for the agent, and by incurring monitoring costs designed to limit undesirable (and promote desirable) activities of the agent. It is impossible for the principal and the agent to ensure at zero cost that the latter will take optimal actions from the former's point of view; nor to eliminate the agency problem via contracting, monitoring and bonding efforts: the difference in outcome as between that resulting from the agent's actions and that possible assuming maximisation of the welfare of the principle is the residual cost (or residual loss) (Jensen and Meckling, 1976).

Agency theory has developed along two lines: positivist and principal-agent (Jensen, 1983). Positivist researchers have focused on identifying situations in which the principal and the agent are most likely to have conflicts of interests, and have been more concerned with describing governance mechanisms, such as independent boards of directors, to solve the agency problem (Eisenhardt, 1989). Whilst positivist agency theory can be regarded as enriching economics by offering a more complex view of corporations, it has been criticised as minimalist and lacking in rigour by organisational theorists and microeconomists (Jensen, 1983). In comparison to the positivist agency theory, principal-agency theory is abstract and mathematical, thus being less accessible to many scholars. Principal-agency researchers are more concerned with a general theory of the principal and agent relationship, one that can be applied to employer and employee, buyer and supplier, lawyer and client, and to any other agency relationships (Harris and Raviv, 1978). It has a broader focus and greater interest in theoretical implications. However, scholars have been primarily focused on the more well-known positivism stream of the agency theory, mainly concentrating on the special case of the owner(s) and CEO relationship in the large listed corporations (Eisenhardt, 1989).

As a normative consequence of recognising the agency relationship, the approach to the agency problem is about how to structure the contractual relation between the owners and managers in order that the latter to act to maximise the former's welfare under conditions of uncertainty and imperfect monitoring (Jensen and Meckling, 1979). According to normative agency theory, corporations should use incentive structures that align the interests of owners and managers as well as increasing the monitoring and control oversight of the latter (Fama and Jensen, 1983b). The means of mitigation of the agency problem caused by the separation of ownership and control is a corporate governance system that can act as the monitoring mechanism. In this context, greater concentration of ownership and closer influence of management by controlling shareholders may be seen as leading to a reduction in the separation between ownership and control, with controlling shareholders having the ability to make sure the managers do not misappropriate the interests of either the controlling shareholders or the minority (Shleifer and Vishny, 1997; Miller and Sardais, 2011).

In addition to the classic corporate agency problem, however, there is another issue in relation to a conflict of interest between minority shareholders and controlling block holders when the latter have the power to oppress the former (Berkman *et al.*, 2009; Miller and Sardais, 2011; Shleifer and Vishny, 1997). Under such circumstances, the large, majority shareholders may be opportunists; and agent (director) independence and uniform information asymmetries (i.e. similar for the majority and the minority) may support an outcome of equal efforts on behalf of all shareholder and stakeholder groups, and lead to a more sustainability firm structure over the longer term than non-separation between agent and shareholders (Miller and Sardais, 2011). Gomes (2000) suggested that, in many countries, the issue is not the traditional agency problem between managers and shareholders, but rather, the agency problem between the controlling and minority shareholders. The agency problem between these two cohorts is due to the lack of protection of minority shareholders and large controlling shareholders often being involved in the firm's management – under such structure, the role of monitoring moot. Gomes (2000) further argued that, firms are more likely to have a controlling shareholder or controlling shareholder block (and poor governance structures) in market environments with less effective minority investor protection. Firms with widely held shares, and without individual controlling shareholders,

are likely to see the formation of a controlling block of shareholders. Controlling shareholders (or a controlling block) have incentives and the power to extract benefits for themselves, instead of acting as a monitor to ensure value maximisation for *all* shareholders, including the minority. Accordingly, large/block shareholders (and other stakeholders), such as institutional investors and banks, are less likely to act as effective monitors: it may be more profitable for those large block holders to derive value for themselves than to spend resources on monitoring and challenging management.

Under China's environment of weak legal protection of investors and inefficient corporate governance structures, controlling blocks of shareholdings were likely to form, both before and after SSSR. Hence, controlling shareholder groups - the state, central government agents or local SOE hierarchies – may have remained in control (or re-acquired control) of firms via control of shareholding blocks after SSSR. However, the controlling blocks of shares in SOEs became tradeable in the market – so the controlling shareholders would have had increased ability (via market trading) to extract value for themselves from SOE firms, to the detriment of minority (private) shareholders. Conversely, prior to SSSR, with the controlling block in SOEs being non-tradable shares, controlling shareholders and managers would have been less able to expropriate value from minority shareholders. Majority/block shareholders are not expected to monitor management on behalf of the minority, nor be concerned with the wealth of the minority, but rather, to extract private benefits for themselves (Novaes, 1999). The conversion of non-tradeable shares in SOEs to become tradeable would, therefore, have made minority shareholders more vulnerable.

In China, before SSSR implementation, 80% of the listed companies had controlling shareholders, most of which were represented by non-tradeable shares (Liao *et al.*, 2014). La Porta *et al.* (2000) denoted a firm as having a large shareholder, if it has one with more than 20% of the shares and as having multiple large shareholders, if the largest has more than 20% and the second largest has at least 10%. In such cases, they argued, the main agency problem is likely to be that between majority and minority shareholders. In China, this translates to implying an agency problem between the holders of non-tradeable shares and the holders of tradeable one. The holder of non-tradeable shares in SOEs are the Chinese government, its agents and local SOE hierarchies. The agency problem manifests itself in a conflict of interest

between government representatives/agents and private investors. Prior to SSSR, the non-tradable share prices were based on book value of assets, while the price of tradeable shares, post SSSR, is based on the capital-market-based mechanism of price discovery. As a result, the companies subject to SSSR had not only incentives (see Chapter 1), but also the capability to manipulate both earnings and prices prior to completion of the lock-in phase of SSSR.

Aguilera and Jackson (2003) suggested that agency theory has traditionally focused on aligning the interest between principals and managers and it has been widely adopted in the Western corporate governance literature. They criticised this literature on agency theory for failing to account for key differences across countries, and argued that ownership and control is not clearly separated in many jurisdictions. For example, in Eastern Europe and Asian countries, block holders such as governments, banks, and families retain significant capacity to exercise direct control. In these contexts, there are fewer market-oriented rules for information disclosure, weaker managerial incentives, and/or a greater use of debt (as compared to equity).

For China's institutional setting, similar to Eastern Europe and Japan (where the ownership and control are not as separate as in typical modern, Western corporate structures), the effective control rights of managers vary considerably. In the Western literature, the agency problem results from the separation of ownership and control, whilst for China, such separation might be viewed as a solution for management inefficiency and high political cost (Qian, 1996). Hence, unlike most Western literature, which focuses on the normative aspects of the agency relationship in terms of the problems of separation of ownership and control, the potentially positive aspects of such separation must be recognised in the Chinese context. Jensen and Meckling (1979) argued that the most important conflict arises when the owners overshadow the managers insofar as the latter's initiative to search out possible profitable ventures is reduced and the effort of monitoring increases.

The core intent of China's economic reforms – including the establishment of two stock exchanges in the early 1990s and implementation of SSSR from 2005 to 2008 – was to reform SOEs. The objective was to improve SOEs' management efficiency by means of "expanding enterprise autonomy" and "increasing retained profits"(Qian, 1996). Emphasis was placed on reducing the cost of the political bureaucracy and promoting economic

efficiency. Hence, the classical agency problem of the Western literature was not a concern, but rather, a separation of management and control was regarded as desirable, with managers to have ownership of decision-making under market discipline.

In study, therefore, two key agency relationships/conflicts are relevant:

1. Local SOE hierarchies both majority owned (via large/block shareholdings) and wholly controlled (as directors and managers) SOEs. There was an agency conflict between the local SOE hierarchies and the minority (private) shareholders in SOEs;
2. Local SOE hierarchies were responsible for implementing SSSR on behalf of the Chinese government, delivering the desired benefits. There was a classical agency conflict between what was desired by the government, and what best served the local SOE hierarchy.

3.4 Property rights theory

Property rights are "the rights of individuals to the use of resources … supported by the force of etiquette, social custom, ostracism, and formal legal enacted laws supported by the states' power of violence or punishment" (Alchian, 1965, P817). All economic activities, including the use of assets, earned income, transfer or exchange of assets and resources, trade and production can be seen as the exchange of bundles of property rights. Kim and Mahoney (2005) defined the economic aspects of property rights as a complementary concept within a legal framework that gives these rights legal protection and third-party enforcement.

The general perspective of modern property rights theory is that in a world of incomplete contracts, the ownership of physical assets matters for the efficiency of investment (De Meza and Lockwood, 1998). The modern property rights theory of the firm was first introduced by Grossman and Hart (1986) and Hart and Moore (1991), being termed the 'GHM approach'. They made a distinction between specific and residual rights of control, stating that when it is costly to list all the former over assets in the contract, then it is optimal to let one party purchase all of the latter from the ownership. In both papers, it was asserted that the allocation of residual rights control has critically important incentive effects. Aghion

and Tirole (1994) further distinguished between formal and real authorities. They argued that one party that has formal control rights may delegate to another partial real control, because of the latter's information advantage. One of the important insights of property rights theory is that different specifications of these arise in response to the economic problem of allocating scarce resources, and that the prevailing specification of property rights affects economic behaviour and outcomes (Coase, 1960; Pejovich, 1982; Pejovich, 1995). Economic inefficiency occurs when many different people are able to hold partial rights to facets of a single resource. When there are more than two contracting parties, this can affect the income flow from a set of property rights and delineating each party's respective right becomes difficult. The issue of distributing income generated by the collective efforts of different contracting parties needs consideration. Both the initial assignment of property rights and expected distribution will impact on individuals participating in collective effort (Libecap, 1989). A configuration of property rights that is posited to be an economically efficient response is one which provides appropriate economic incentives for the owner of each bundle of property rights.

Modern property rights theory emphasises the importance of the allocation of control rights in analysing firms' performance. The theory more fully accounts for business sectors where inefficient economic outcomes persist, while agency theory adopts a perspective more based on management opportunism (Kim and Mahoney, 2005). Beyond agency theory, property rights theory brings elements into the analysis of contracts and of institutions that account for circumstances where there is potentially failure to reach satisfactory contractual agreements or where there is no need for a contract between counterparties (Kim and Mahoney, 2002, 2005). Unlike agency theory, the unit of analysis is the principal-agent contractual relationship, and emphasis is placed on the economic incentives of the contracting individuals within the context of this relationship. Moreover, the focus of property rights theory is on the institution level, the political environment and analysis of public policy regarding the contract cost at a micro-analytic level (Kim and Mahoney, 2005). On the institutional level, property rights theory provides an evolutionary perspective of the processes through which institutional choices are made (Anderson and Hill, 1975), where the vested economic interests of the contracting parties and potential distributional conflicts are considered, thereby helping to explain why inefficient property rights regimes can persist.

Under property rights theory, the reasons why governments may be ineffective in resolving economic inefficiencies are that an expanding set of property rights owners can lead to widespread contractual failure (Wiggins and Libecap, 1985; Libecap and Wiggins, 1985), whereby not only will the managers pursue their self-interest within the rules, for they will also allocate resources towards changing property rights rules to their own benefit (Qian and Stiglitz, 1996). This is particularly the case in China, with the non-state sector developing at a fast speed, managers, or their relatives and friends, often have their own businesses, which provide opportunities for diverting state assets into private benefits.

Agency theory, as discussed above, concentrates on aligning the economic incentives of the agent with those of the principal in order to maximise shareholder wealth. Agency problems result from information asymmetry, bounded rationality and moral hazard issues, arising in the business context through separation of ownership and control. In terms of property rights, an agent can appropriate a principal's ownership rights by shirking his/her duty in circumstances where information asymmetry and measurement problems exist. Property rights theory concentrates on the failure between contracting parties. However, this can also be a feature of the agency problem, where potential holdout motives can lead to inflexible economic and political positions, thus making contracting difficult, especially if the number of contracting parties is large and/or there are different levels of access to information (De Meza and Lockwood, 1998).

The control of different levels of residual rights gives different levels of influence for the rights purchasing groups (Berglöf, 1991). In China, the level of residual rights is different between SOEs under central government control, those under local government control and non-SOEs. Whilst management efficiency may increase with increasing separation between ownership and control, *albeit* agency cost may increase, the residual rights of control are extended in diversification of the shareholder group (as would be expected as a result of SSSR) and the possibility of contracting failure may also reduce.

3.5 Behavioural finance theory

Shiller (2003) suggested that behavioural finance theory stands in sharp contradiction to much of efficient markets theory. Under the latter, it is believed that speculative asset prices,

such as stock prices, always incorporate the best information about fundamental values and that prices change only because information meshed well with appropriate theory. The efficient markets theory was ascendant and dominant in academic circles during the 1970s. Later, however, studies found that the level of volatility of the stock market could not be well explained by the efficient markets model in which stock prices are derived from the present value of future returns. To explain the volatility of the market, behavioural finance theory posits that there is substantial noise introduced by human psychology – so substantial that it can dominate market movements. The emergence of behavioural finance in the early 1990s challenged the efficient market hypothesis as the widely-accepted theoretical framework to understand investing and prices: investing rationality and efficient market processes over time contradict investors' psychology, biased behavioural rules and market bubbles (Konstantinidis *et al.*, 2012).

Behaviour finance theory pertains to how human psychological behaviour affects investment decision making and the financial market (De Bondt and Thaler, 1995; Shefrin, 2001; Sewell, 2007; Fairchild, 2007). Instead of the traditional assumption that managers and investors are fully rational, it is assumed that they are not always so, because their emotions, biases, and illusions cannot be rationalised. Under the behavioural finance perspective, it is held that stock markets are informationally inefficient both in terms of accessibility and the availability of information (Subrahmanyam, 2008). Owing to the irrationality of investors and inefficiency of the financial market, stock prices are unpredictable; however, a more highly efficient market with high level of information availability will improve rationality behaviour and result in fewer behavioural finance outcomes and investing failures (Shiller, 2003).

In this thesis, it is recognised that in the Chinese context of an illiquid and inefficient stock market, managers and majority shareholders are able to pursue their self interest in firms, to the detriment of the minority. Moreover, it is acknowledged that they are able to influence and manipulate prices to an extent that would not be possible in a more efficient market setting.

3.6 Combined theory in the Chinese context

For this study, agency theory, property rights theory and behavioural finance theory are all taken into account to help contextualise and inform predictions.

As previously discussed in the agency theory section (above), principal-principal issues are the major concern in China, rather than principal-agent problems. The traditional agency theory in western literature after Ross (1973) and Jensen and Meckling (1976) cannot be applied wholesale in the Chinese context due to the controlling shareholders' power to direct and override managers. In contrast to the position in developed western economies, in China, the power differentials are not skewed towards the managers, but rather, maintained by the controlling shareholders. A significant difference in the Chinese finance and capital markets is that there is heavy government intervention, with a large proportion of listed firms being government owned enterprises. Local governments or government institutions (as controlling shareholders) then appoint government officers as enterprises' managers to maximise their benefit. Since the early 1980s the institutional transitions and reforms of corporate governance in China have purportedly started to pursue decentralisation of the states' controlling roles in SOEs and empowerment of their managers. But Conyon and He (2011) argue that business reforms in China are merely window-dressing or ineffective, and China has experienced difficulties in achieving the separation of government and enterprise which has been advocated for many years (Nolan 2002). Application of the traditional principal-agent model remains problematic. Firstly, the effective external governance mechanisms/conditions, such as competitive product and labour markets and strong shareholder protection (Young *et al,.*2008), are not well/fully developed. Secondly, guanxi (relationship)-based governance regimes continues to help firms secure critical resources and is contra to a key assumptions of agency theory regarding self-interested agent and principal conflicts (Luen *et al.,* 2013).

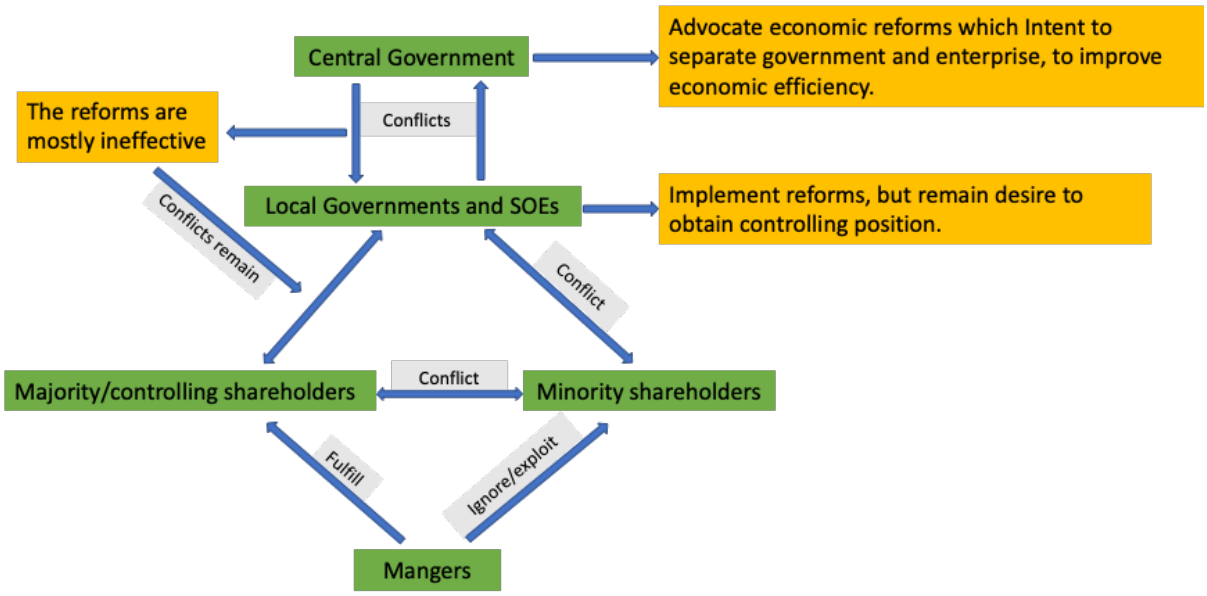
Most Chinese listed firms are SOEs or former SOEs and the state and/or government institutions are the majority/controlling shareholders. The dominance of state ownership means that the government exerts control over managerial appointments and incentives, and that most managers are political appointees (Liu and Ren, 2003). Further, the roles of chairman of the board and CEO are often combined in China, so limiting the board's

usefulness in monitoring managers' behaviour (Wei, 2003). And, according to Conyon and He, (2011), Chinese economic reforms seem to be ineffective as regards rebalancing control from controlling shareholders to managers.

As regards the minority, individual minority shareholders are in a relatively extremely weak position and are unable to counter the influence of majority/controlling shareholders. Chinese minority shareholders are often regarded as mere speculators whose only desire is to gain a ''free ride" on the firm's performance (Lin, 2004); and the protection of minority shareholders' rights is potentially problematic (Mei, 2005). Indeed, Shan and Round (2012) report disadvantage of minority shareholders from relatively recently listed firms being allowed to engage in accounting practices deferring reported losses and transferring assets out of the company. Therefore, this study follows the principal-principal agency theory model modified to predict that managers are more likely to manager earnings on behalf of controlling shareholders, while less concerned about or ignoring the interests of minority shareholders. The circumstances and relationships are illustrated diagrammatically in Figure 3.2.

Since the 1980s, the Chinese central government has advocated reform with the aim of decentralisation of government control over enterprises and of empowering their managers. For a much of the time, however, the issue of non-tradable shares was facilitated by (the continuation of) state-controlled majority ownership in listed/listing firms. There were several attempts at non-tradable share reform, but it was not until the SSSR that reform was widely implemented. But whilst the SSSR effected the transition of previously non-tradable shares to become tradable, its effectiveness in transitioning listed firms from state-controlled ownership is far from clear – indeed, commonly, it was largely ineffective. At the local government and local SOE hierarchy level, there remained a strong incentive to maintain (or quickly re-obtain) control over firms subject to the SSSR, and so retain power over the firms and the ability to influence management. The conflict of interest between majority/controlling shareholders and minority shareholders, therefore, remains; and managers who are appointed by majority/controlling shareholders will pursue their common interests, while subordinating or even appropriating minority shareholders' interests.

Figure 3.2: Agency theory under Chinese context



Based on property rights theory, non-separation of ownership and control means that the managers in Chinese SOEs do not pursue full control rights, but rather, only the residual rights of control. For example, managers can decide on how to use assets, but not on buying or selling assets. However, since they are under the control of local governments and may pursue only residual control, delineating each party's control rights becomes difficult. The contract failure between managers and enterprises leads to management inefficiency, economic inefficiency and government ineffectiveness, thus resulting in widespread contractual failure (Wiggins and Libecap, 1985; Libecap and Wiggins, 1985).

Reverting to Figure 3.2, in China managers are appointed by majority/controlling shareholders and are expected to serve the majority/controlling shareholders' interests. This does not mean, however, that conflicts of interests between majority/controlling shareholders and managers is eliminated. On the contrary, according to property rights theory, when ownership and control are not separated managers will not just pursue their self-interest within the rules but will also allocate resources towards diverting property rights to their own benefit (Qian and Stiglitz, 1996). Hence, the apparent increase in separation between ownership and control might be expected to have led to a transformation of property rights resulting in improved efficiency, but in the Chinese context where central government and SOEs retain effective ownership and control, the efficiency effect certainly could not be relied upon.

The main concern in China's economic reforms, especially as regards SOEs, was to reduce the burden and cost of political bureaucracy, and this was given priority over potential agency cost concerns. The separation of ownership and control can encourage managerial incentives via, *inter alia*, property rights transfer. But in the Chinese context, despite having delegated many effective control rights to the autonomous divisions, ultimate control rights, such as selection and dismissal of top managers, approval of large investment projects and veto powers over the disposal of major assets, still remained in the hands of the Communist Party and the government. This would consequently either have increased the agency costs, because of managers lacking accountability, or increased political costs, because the government engaged in political interference, or both (Qian, 1996; Faccio *et al.*, 2006; Francis *et al.*, 2009; Ezzamel *et al.*, 2007; Piotroski *et al.*, 2015). The interaction between the effective control by managers over some decisions and the ultimate control by the Communist Party and government over others is the key to understanding the problems with SSSR and the issues to be addressed in this study. In this thesis, it is recognised that the reforms in China, *prima face*, suggest increasing incentives for managers to act efficiently given a transformation of residual property rights arising out of increasing separation of ownership and control. Given the context of state control and local SOE hierarchies wishing to retain ownership and control, however, property rights transition was unlikely. If the majority are, however, willing to transfer some control rights to managers, then conflicts of interest between minority shareholders and majority/controlling shareholders may be mitigated; and management efficiency may be enhanced.

According to behavioural finance theory, when the market is inefficient, human psychology will have a great impact on financial markets, i.e. emotions, biases and illusions will play a strong part. In China, with illiquid and lesser efficient capital markets along with a rapidly expanding non-state sector, managers (and their private, business and political networks) have the opportunity to manipulate market and prices and to appropriate wealth from private investors on behalf of SOE hierarchies, or from the state for private benefit.

The objective of SSSR was to boost management incentives to achieve better financial performance and improved economic efficiency under market discipline by transforming non-tradable shares into tradable ones. Since non-tradable shares were state owed and

managers/local agents were appointed by local SOE hierarchies, then the boosted management incentives would, in reality, have been to maximise the benefit for local SOE hierarchies, i.e. to best serve immediate bosses / local political masters. Hence, the high-level efficiency objectives of central government and concern for minority (private) shareholders could have been absent from managers' goals.

Before SSSR, shares in China were officially classified into non-tradable shares and tradable shares. Non-tradable shares were mainly held by controlling shareholders and tradable shares were mainly held by minority shareholders. Du (2014) states that controlling shareholders were usually not able or inclined to trade their shares or disrupt share prices and sought other, unethical channels in order to expropriate the interests of minority shareholders and so self-compensate for not benefiting from share price appreciation. The SSSR, in transforming previously non-tradable shares to become tradable, enabled controlling shareholders to receive wealth gains from rise in share prices, as minority shareholders did (Sun *et al.,2017*). As a result, the incentives for controlling shareholders (and managers) to manage share prices may have increased as a result of the SSSR.

In China, the financial markets are less efficient than those of fully developed western economies (Lovett *et al.*, 1999). As discussed in 3.3, the agency problem is between controlling shareholders and minority shareholders: managers of SOEs are appointed by central or local government and their behaviour is under the supervision of central or local government controlling shareholders. Managers as representative of controlling shareholders' have strong incentive to manage earnings in order to fulfil controlling shareholders' interests (Young *et al.,* 2009*)*. In an inefficient financial market, minority shareholders have limited access to financial information and are more prone to investing failures than are majority/controlling shareholders (George and Prabhu, 2000). Market inefficiency issues and agency problems are pervasive in the many Chinese corporate scandals which listed firms, together with their controlling shareholders, expropriate minority shareholder interests (Wang and Xiao, 2011). In the concentrated ownership structure of Chinese firms, managers usually represent controlling shareholders - which makes the agency problems between controlling shareholders and minority shareholders more pronounced and reduces the relative significance of the agency problems between shareholders and agents

(Claessens and Fan, 2002). But those managers with (even limited) power over the controlling shareholders will pursue their self-interest within the rules, and allocate resources towards changing property rights rules to their own benefit (Qian and Stiglitz, 1996).

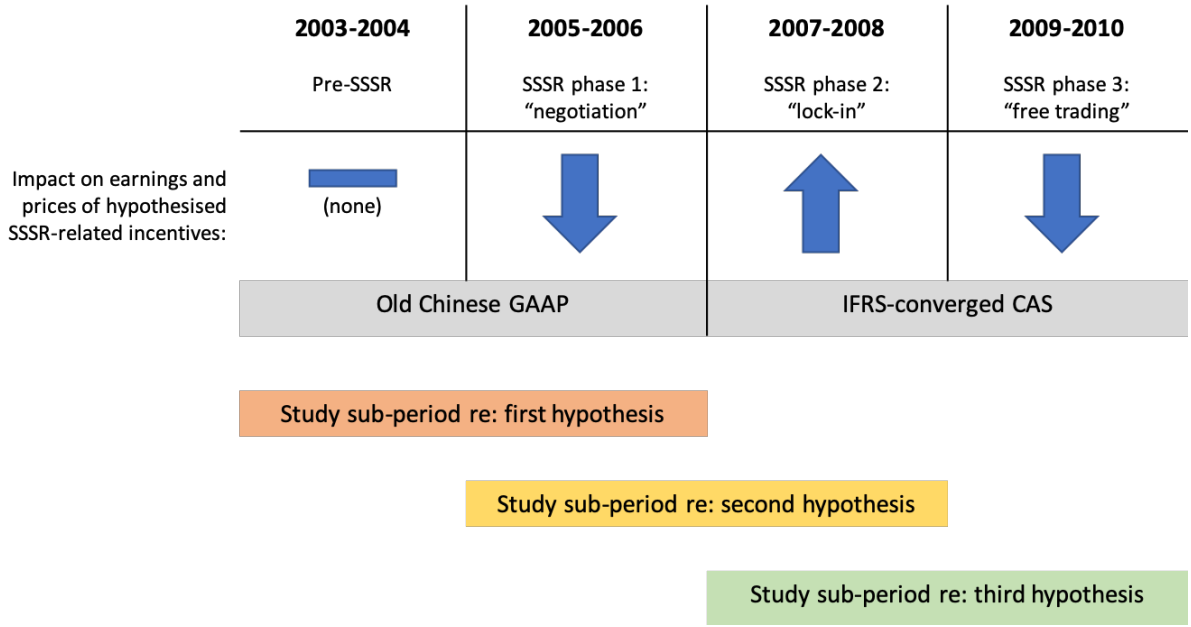
From the theories discussed in this Chapter, for this research, the following key points regarding the Chinese context are recognised.

- Local SOE hierarchies both majority own (via large/block shareholdings) and wholly control (as directors and managers) SOEs. There is an agency conflict between the local SOE hierarchies and the minority (private) shareholders in SOEs.
- Local SOE hierarchies were responsible for implementing SSSR on behalf of the Chinese government, delivering the desired benefits. There was a classical agency conflict between what was desired by the government, and what best served the local SOE hierarchy.
- Local SOE hierarchies as a dominant stakeholder group have both majority ownership of SOEs, whilst also being the management.
- The Chinese government is not only a policy maker, regulator, infrastructure provider and tax recipient, but also a (direct or indirect) shareholder, ultimate master of local SOE hierarchies, and the promoter of a significant capital market and accounting reforms.
- The reforms in China, *prima face*, suggest there were increasing incentives for managers to act efficiently given a transformation of residual property rights arising out of increasing separation of ownership and control as well as greater dispersion of shareholdings to increase managerial incentives to better efficiency. However, given the context of a government and local SOE hierarchies that wished to retain ownership and control, property rights transition was unlikely.
- In the context of an illiquid and inefficient stock market, managers and majority shareholders are able to pursue their self interest in firms, to the detriment of the minority and, further, that they are able to influence and manipulate prices to an extent that would not be possible in a more efficient market setting.

By combining principal-principal agency theory, property rights theory and behavioural finance theories, this study suggests that it is unlikely that local state/government

institutions will lose their dominant role as the majority/controlling shareholders in list firms, which were, and are likely to remain, SOEs. Control rights are not likely to shift towards managers – who will still be appointed to serve the interests of majority/controlling shareholders and are likely to ignore or exploit the interests of minority shareholders. In short, this study predicts that the circumstances and relationships will remain largely as depicted in Figure 3.2 after the SSSR. This study predicts that, in pursuit of the interests of majority/controlling shareholders and themselves, managers had strong incentives to manage earnings and share prices in the manner depicted in Figure 3.3; and that these strong earnings management and financial market incentives resulted in decreased earnings quality.

Figure 3.3: The predicted impact on earnings and share prices of SSSR-related incentives



In the first phase of the SSSR implementation, from 2005 to 2007, managers and controlling shareholders were going through a negotiation with minority shareholders. Managers as the representative of controlling shareholders had an incentive to manage earnings downwards and to drive share prices downwards in order to reduce/minimise the compensation payable to minority shareholders in respect of the SSSR. After the completion of negotiation with minority shareholders, non-tradable shares remained in a lock-in period for twelve to 24 months – the second phase of SSSR. In this phase, from 2007 to 2008, incentives to manage earnings downwards and share prices are reversed: managers and their

controlling shareholders have incentives to drive share prices up in order to be able to gain from the share price appreciation when first able to sell previously non-tradable share after the lock-in period. In the final phase, 2009-10, previously-non tradable shares became tradable. After taking early advantage of selling shares at a high price at the beginning of this phase (see preceding point), managers, on behalf of majority/controlling shareholders have an incentive to drive down share prices in order that majority/controlling shareholders can regain their full previous levels of control at a relatively modest price. As regards the pre-SSSR period, the ability of majority/controlling shareholders to influence share prices in pursuit of their own interests was limited – since their shares could not then be traded in the financial market – and this may have led to low value relevance of earnings in the market at that time.

Further to this theoretical discussion and summary, the following hypotheses are made:

> *H1: In the first phase of the SSSR implementation, from 2005 to 2006, managers of Chinese A-share listed firms have an incentive to drive down both earnings and share prices. As a consequence, earnings and market prices will fall, and earnings quality will be reduced.*
>
> *H2: In the second phase of the SSSR implementation, from 2007 to 2008, coincident with China's adoption of IFRS-converged CAS, managers of Chinese A-share listed firms have an incentive drive up earnings and share prices. As a consequence, and despite IFRS convergence, earnings and market prices will rise, and earnings quality will be reduced.*
>
> *H3: In the third phase of the SSSR implementation, from 2009 to 2010, after adoption of IFRS-converged CAS, managers of Chinese A-share listed firms have an incentive to drive down both earnings and share prices. As a consequence, earnings and market prices will fall, and earnings quality will be reduced.*

To test the first hypothesis, this study compares the change of reported earnings, share prices and dimensions of earnings quality between 2003-2004, the pre-SSSR implementation period, and 2005-06, the first phase of SSSR pre-IFRS adoption. Both of

these periods preceding China's adoption IFRS-converged CAS. To test the second hypothesis, this study compares the change of reported earnings, share prices and dimensions of earnings quality between 2005-2006, the first phase of SSSR (pre-IFRS adoption), and 2007-08, the second phase of the SSSR which coincided with China's adoption of IFRS-converged CAS. It should be noted that there is, by design, overlap/repeated use of a period: the base case period in testing the second hypothesis, 2005-06, is the same as the test period adopted in testing the first hypothesis the pre-IFRS adoption period, and the second phase of the SSSR implementation, 2007-08, 08. To test the third hypothesis, this study compares the change of reported earnings, share prices and dimensions of earnings quality between 2007-2008, the second phase of the SSSR (post-IFRS adoption), and 2009-10, the final phase of the SSSR (also post IFRS adoption). Again, there is overlap/repeated use of a periods: the base case period in testing the third hypothesis, 2005-06, is the same as the test period adopted in testing the second hypothesis.

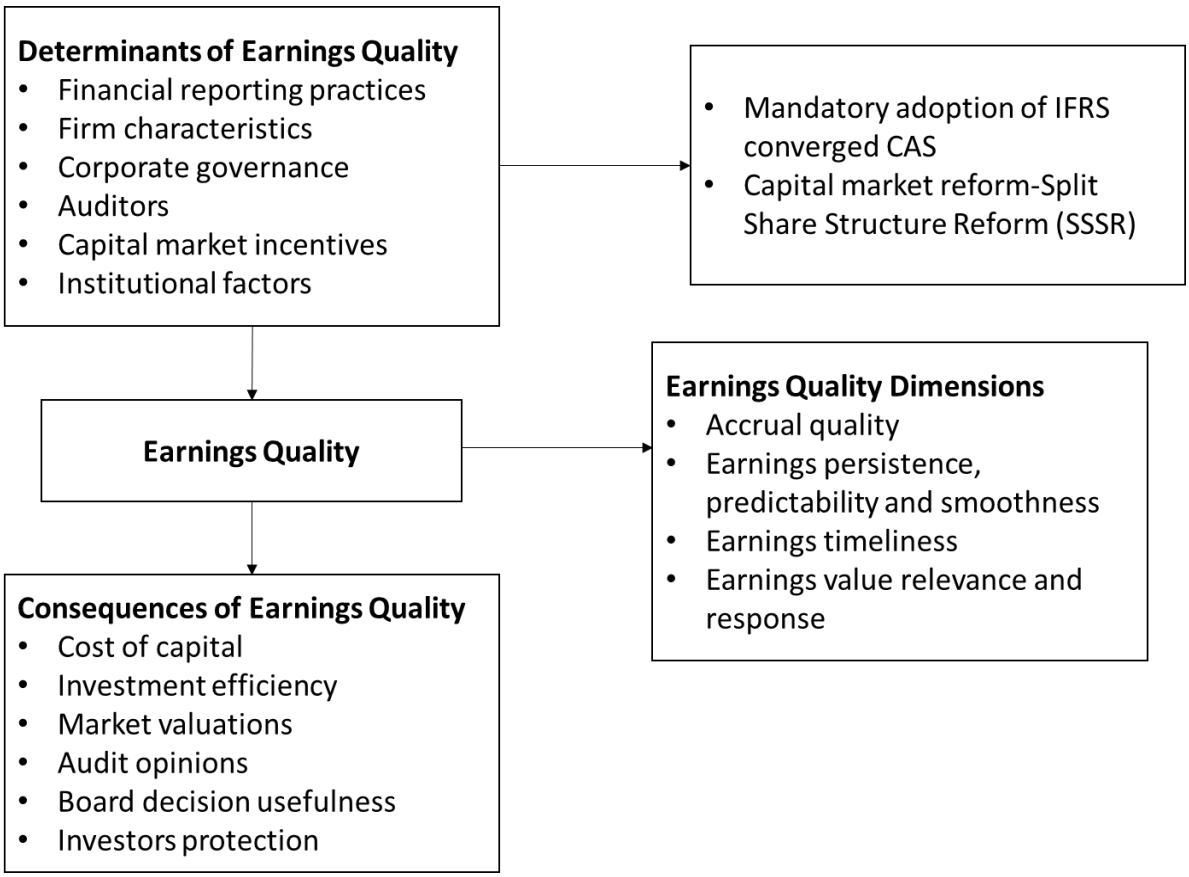
Chapter 4: Earnings quality

4.1 Introduction

This chapter provides a general understanding of earnings quality from different viewpoints regarding definitions, determinants and consequences. Thus, this chapter discusses the corner stones of the earnings quality in the light of previous literature on the phenomenon.

This chapter is organised as follows: Figure 4.1 on the next page summarises the main determinants and consequences of earnings quality according to the literature. In Section 4.2, the different definitions that have been developed and applied in the previous research are discussed. Section 4.3 addresses the different dimensions of earnings quality, whilst Section 4.4 reviews the relevant literature in China. Section 4.5 discusses the different determinants of earnings quality and Section 4.6 explores the different consequences of earnings quality dimensions according to the prior literature. Finally, a conclusion for the chapter is presented in Section 4.7.

Figure 4.1: Earnings quality: determinants, consequences and dimensions



4.2 Earnings quality

According Dechow *et al.'s* (2010) definition:

> "Higher quality earnings provide more information about the features of a firm's financial performances that are relevant to a specific decision made by a specific decision-maker". Moreover, higher earnings quality means that "earnings reflect current performance, that earnings data are useful for predicting future performance, and that the earnings data accurately annuitizes intrinsic firm value" (Dechow and Schrand 2004).

Assessing the information usefulness of earnings in financial markets has drawn much research effort due to the prominent role of accounting earnings in the capital market (Ball and Brown, 1968). Ball and Brown (1968) first started capital market research in accounting in their seminal paper: "An Empirical Evaluation of Accounting Income Numbers". They

empirically investigated the association between accounting earnings in the financial statements and market stock returns, thereby assessing the usefulness of accounting information in the financial market. Under the market efficiency hypothesis, all information in this market will be reflected timely into the security price and thus, net income is a number of particular interest to investors; the outcome serves as a predictive criterion for the investment decision as it is reflected in security prices (Ball and Brown, 1968). The results of Ball and Brown (1968) show that the market had forecasted 85-90% of the news before the announcement, which is in line with the hypothesis. Beaver (1968), in another important paper on the early stage of accounting research, examined the behaviour of security returns after an earnings announcement. The author established that both trading volume and return volatility increase at the time of earnings announcements and indicated that the behaviour of the price changes supports the contention that earnings reports possess information content. However, news announcements occurring prior to the earnings report do not entirely pre-empt the information content of reported earnings.

There have been a number of studies in the accounting literature researching the value relevance of financial reports (Dechow *et al.*, 1994; Sloan, 1996; Francis and Schipper, 1999; Barth *et al.*, 2008; Collins *et al.*, 2009; Landsman and Maydew, 2002; Ball and Brown, 1968; Beaver, 1968). The earnings term is the most important explanatory variable in the Modigliani and Miller (1958) valuation equation. Since Ball and Brown (1968) and Beaver (1968), the empirical studies in accounting research have grown rapidly with numerous published papers in leading academic accounting and finance journals. Both these papers demonstrated that earnings numbers have information content in the financial market. Thereafter, assessing the information usefulness of reported earnings numbers to investors, became the most concerted research objective in accounting research (Lev and Sougiannis, 1996; DeFond *et al.*, 2007; Collins *et al.*, 2009; Collins *et al.*, 1987; Beaver, 1968; Bartov, 1998; Ball and Brown, 1968; Ali and Hwang, 1999; Francis *et al.*, 2002; Francis and Schipper, 1999; Landsman and Maydew, 2002).

Most of these studies involved exploration of the value relevance of earnings, accruals and cash flows reported in financial statements; however, opinions about the level of explanatory power of these matters are different. Some studies have revealed that there is a

higher explanatory power for earnings than with cash flows (Dechow, 1994; Sloan, 1996). However, Dechow *et al.* (1995) pointed out that discretionary accruals are often used to manipulate earnings and Watts and Zimmerman (1986) suggested that managers may use their information advantage to manipulate accruals opportunistically, and they prefer to use cash flow multiples.

Dechow (1994) investigated the different circumstances under which accruals are predicted to improve earnings' ability to measure firm performance, as reflected in stock price. The results illustrate that cash flows experience more timing and matching problems in comparison with accruals and hence, are less able to reflect a firm's performance. Dechow's (1994) paper also indicates earnings have a higher association with stock returns than realised cash flows. Moreover, the evidence from the work shows that earnings suffer from timing and matching problems over short measurement intervals, but realised cash flows suffer more greatly than earnings in this respect, and accruals help to mitigate these problems.

A paper by Sloan (1996) provided deeper insight into the information content of accounting earnings, examined whether stock prices reflect information about future earnings contained in the accrual and cash flow components of current earnings. He also investigated, to what extent current earnings performance persists into the future is dependent on the relative magnitudes of the cash flow and accrual components of current earnings. In this paper, Sloan (1996) defined accruals as representing the difference between accounting earnings and cash flow. Linking market returns to cash flow and the accrual components of earnings, he found that firms with relatively low accruals experience higher abnormal returns in the future and vice versa. The results indicate the persistence of earnings performance depends on the relative magnitudes of the cash and accrual components of earnings. Moreover, Sloan (1996) elicited that stock prices act as if investors fixate on earnings and fail to identify correctly the different properties of the cash and accrual components of earnings. Further, if the stock is overpriced when the accrual component earnings is relatively high, the future earnings will be lower than expected, because of lower abnormal stock returns. Sloan (1996) questioned the extent to which the lower persistence of earnings performance attributable to the accrual component of earnings is due to earnings management.

Dechow (1994) concluded that accruals improve earnings' ability to measure firm performance, rather than cash flow, because the latter suffers more timing and mismatching problems. Sloan (1996) contended that the accrual component of earnings is less persistent than the cash flow one, and that firms have higher level of accruals associated with lower level earnings quality. Reconciling Dechow (1994) and Sloan (1996) suggests that earnings performance and quality depend on both the components of cash flow and accrual. Moreover, the accrual anomaly falls closely together with the dimensions of earnings quality, whilst accruals quality is an important indicator for earnings management (Dechow *et al.*, 1995).

Many researchers in accounting have investigated the quality of information usefulness of reported earnings numbers. Whilst the research of the earnings value was related to the security prices (McInnis and Collins, 2011; Lev and Sougiannis, 1996; Lev, 1989; Dechow, 1994; Beaver, 1968; Ball and Brown, 1968; Liu and Thomas, 2000), accruals accounting is also now at the heart of earnings measurement and financial reporting. That is, the fundamental element of any test for earnings quality is a measure of management discretionary accruals over earnings in accounting studies (Badertscher *et al.*, 2012; Jones *et al.*, 2008; Francis *et al.*, 2005; Dechow and Dichev, 2002; Dechow *et al.*, 2010). Moreover, based on the time series properties of earnings, persistence and high timely loss recognition indicate high quality of earnings (Watts, 2003a, b; Basu, 1997; Richardson *et al.*, 2005; Penman and Zhang, 2002).

Earnings quality is important for users of accounting data (Penman and Zhang, 2002); however, there is no single conclusion as to what it actually is. Dechow *et al.* (2010) argued that the word "quality" is contingent on the decision context. Higher quality earnings ought to provide more decision usefulness information about a firm's underlying financial performance. However, accruals earnings manipulation can misrepresent the true underlying economic performance (McVay, 2006), because it damages the information transparency and this can seriously affect its decision usefulness to investors (Scott 2014). All these factors make the earnings quality difficult to investigate.

In Dechow *et al.'s* (2010) paper, they classified earnings quality proxies from three aspects: properties of earnings, investor responsiveness of earnings and external indicators of earnings misstatements. Since the current study is aimed at investigating the impact of China's recent reforms on earnings quality, external indicators of misstatements, such as SEC

enforcements and restatements will be neglected. Drawing on Dechow *et al.* (2010) research, in this study, the literature that considers earnings quality according the aspects of the accounting based earnings reliability and market-based earnings value relevance is reviewed, which is divided into four dimensions: accruals quality, earnings persistence and smoothness, earnings timeliness, and earnings value relevance.

4.3 Dimensions of earnings quality

There are extensive inter-related literatures on earnings quality, its dimensions and the impact of changes in accounting regulation on this quality. This section covers the literature regarding abovementioned four dimensions.

4.3.1 Accruals quality

There has been significant growth in academic research on earnings management in the last two decades. Walker (2013) reviewed published earnings management papers from 10 leading accounting journals for the period of 2000-2010 and elicited that the journals have published roughly 30 earnings management articles per year for the past 11 years. This sub-section reviews the literature regarding what earnings management is, its measurements and research design issues.

4.3.1.1 Earnings management definition

There is no single agreed definition of earnings management; however, it has to be defined before further discussion and the final stage of interpretation.

Schipper (1989) defined earnings management as:

"a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain"

This definition from the information usefulness perspective illustrates that earnings management contrast as with merely facilitating the neutral operating of the process. Apart from management incentives, Schipper (1989) argued that the rules of accruals accounting within the General Accepted Accounting Principles (GAAP) lead to accounting numbers

measurement with error and thus, unmanaged earnings or true income are noisy measures, which means that non-discretionary accruals are a poor benchmark within the GAAP. The author suggested that the concept of true earnings does not exist nor is needed, because earnings management is inherent in the accounting procedures even within the GAAP. Hence, the financial market reacts to information that is subject to earnings management, rather than real earnings numbers, which means that the properties of the noise, such as the earnings amount, bias, and/or variance will impact upon the estimation of the discretionary accruals.

Healy and Wahlen (1999) took a different perspective on the role of the GAAP in earnings management to that of Schipper (1989). In their view, financial reporting and standards setting add value to the information decision usefulness when the financial statement enables effective portrayal of the differences in firms' economic positions and performance in a timely and credible manner. Moreover, all accounting standards permit managers to exercise judgement by using their knowledge about the business, offering opportunities to select methods for preparing financial reporting that conveys their preferred information on firm performance to external financial statement users (Schipper, 1989; Healy and Wahlen, 1999). Based on how much judgement management is permitted to exercise in financial reporting, (Healy and Wahlen, 1999) held that earnings management:

> "occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers"

The definition of Healy and Wahlen (1999) contains the negative term to "mislead" or "influence contractual outcomes". Hence, their earnings management definition moves away from the information decision usefulness perspective to management incentives one. However, the management incentive is unobservable and in fact, the most extreme forms of financial fraud might be the only observable form of earnings management, according Healy and Wahlen (1999). Dechow and Skinner (2000) defined earnings management in their study as financial fraud:

> "the intentional, deliberate, misstatement or omission of material facts, or accounting data, which is misleading and, when considered with all the information made available, would cause the reader to change or alter his or her judgment or decision"

In accounting research, earnings management is considered as a negative concept since Healy and Wahlen (1999). It is considered as referring to earnings manipulation and misleading investors, being strongly associated with the negative side of management incentives, rather than the decision usefulness of information to outside investors. Scott (2005) illustrated how earnings management can be good as it conveys inside information to outside investors. However, there is a fine line between earnings management and earnings mismanagement (ibid). Walker (2013) defined earnings management in broader and more neutral terms:

> "the use of managerial discretion over (within GAAP) accounting choices, earnings reporting choices, and real economic decisions to influence how underlying economic events are reflected in one or more measure of earnings"

The underlying assumption of Walker (2013) is that, if a pure clean surplus accounting income is obtained and free cash flows are given, then net income will become the only measure of earnings, which can be managed only via the accounting choice regarding accruals. However, in reality, a pure clean surplus accounting income does not exist, for reported earnings figures are not only affected by accounting choice, but also, are influenced by the incentives that arise for firms and/or managers.

4.3.1.2 Accrual quality measures

In prior studies several proxies for earnings management have been used. Some of these relate to the properties of earnings distribution, such as earnings smoothness (Burgstahler and Dichev, 1997; Guidry *et al.*, 1999; Collins *et al.*, 1995; Guay *et al.*, 1996), accrual-based earnings management (Dechow, 1994; Dechow and Dichev, 2002; Dechow *et al.*, 1995; Capalbo *et al.*, 2014; Cohen and Zarowin, 2010; Collins and Hribar, 2000) and analyst benchmark (Degeorge *et al.*, 1999; Dechow and Skinner, 2000). The desire regarding earnings management is to increase share returns and to reduce a firm's capital cost in the financial market (Watts and Zimmerman, 1986; Dechow *et al.*, 1996). Those earnings management

studies are from an opportunistic agency theory perspective aimed at detecting whether earnings are manipulated to achieve personal gain (Beneish, 1999; Dechow and Sloan, 1991; Healy, 1985).

However, it is believed that using accrual models to capture the level of earnings management is the most effective measurement (Dechow *et al.*, 2010). The next subsection discusses two streams of accrual models: abnormal accrual quality models and working capital accrual quality models

4.3.1.2.1 Accruals models

An essential part of earnings management research is the measure of management's discretion over reported earnings (McNichols, 2001). There is a vast literature that has attempted to identify discretionary accrual-based on the relation between total accruals and hypothesised explanatory factors, with several different approaches being deployed. In accounting study, the majority of studies have involved using discretionary accruals generated from an accruals model to separate total accruals into these and nondiscretionary accrual components (DeAngelo, 1986; Dechow *et al.*, 1995; Healy, 1985; Jones, 1991; Kang and Sivaramakrishnan, 1995; McNichols and Wilson, 1988). Discretionary accruals have been the focus of most empirical research in accounting, being used as a proxy for earnings management in many of the studies. Non-discretionary accruals are meant to capture adjustments that reflect fundamental financial performance, while discretionary ones pertain to capturing distortions within or outside GAAP regulations to measure accrual quality.

The most widely used accruals quality investigation models are those of Jones (1991), modified Jones (Dechow *et al.*, 1995), performance matched discretionary accruals (Kothari *et al.* (2005), the Dechow and Dichev (2002) approach and the modified Dechow and Dichev (2002) approach (McNichols (2002). These models are summarised in Table 4.2.

4.3.1.2.1.1 Jones' (1991) model

Jones (1991) model uses discretionary accruals to measure earnings manipulation. This was the first time a regression approach was utilised to control for nondiscretionary factors: the change in revenue and property, plant and equipment (PPE). Prior to Jones (1991), both Healy

(1985) and DeAngelo (1986) used total accruals and change in total accruals, respectively, as measures of management's discretion over earnings, with both studies assuming that the component of normal accruals/non-discretionary accruals is constant. McNichols and Wilson (1988) pointed out that this assumption is constrained, because the component of nondiscretionary accrual is not constant, as it changes in response to different economic circumstances. Thus, the omission of relevant variables in models of Healy (1985) and DeAngelo (1986) showing the impact of economic performance on non-discretionary accruals will result in inflated standard errors. Thereafter, McNichols and Wilson (1988), for first time, generated a discretionary accruals framework, with total accruals being separated into two components: normal accruals (non-discretionary accruals) and abnormal accruals (discretionary accruals); however, the method of how to separate total accruals was not explained in their study. McNichols and Wilson (1988) adopted a dummy variable in their model to determine whether a firm is associated with earnings management.

Jones (1991) model enables the separation of discretionary accruals from total accruals to capture earnings management but, the abnormal earnings are not considered as a component relating to the fundamental financial performance. The author defined the total accruals, including working capital and depreciation, as a function of sales growth and PPE, where sales growth controls for non-discretionary working capital and PPE for non-discretionary depreciation expense. Total accruals are measured as the change in, before income taxes payable, noncash working capital, less total depreciation expenses of PPE (Bernard and Skinner, 1996). After the model is estimated, the forecasted value stands for non-discretionary accruals, whilst the estimation error stands for discretionary accruals, which achieves the objective of separating total accruals into normal accruals and abnormal ones. Jones (1991) model has been most used in earnings management study; however, it has been heavily criticised for its low explanatory power and being subject to Type 1 and Type 2 errors[40] (Dechow *et al.*, 2010; Dechow *et al.*, 1995).

[40] Type 1 error in discretionary accruals estimation: classifies the component of non-discretionary accruals, which represents fundamental financial performance as discretionary accruals. Type 2 error classifies the accruals as non-discretionary accruals when they are not.

4.3.1.2.1.2 Modified Jones (1991) model

Dechow *et al.* (1995) modified Jones (1991) model by subtracting change in account receivables from change in revenue to reduce Type 2 errors. They explained that it is easier to manage earnings by exercising discretion over the recognition of revenue on credit sales than cash sales, and argued that Jones (1991) model "orthogonalises the total accruals with respect to revenues and will therefore extract this discretionary component of accruals, causing an estimate bias of earnings management". The Dechow *et al.* (1995) modified model was designed to reduce or even eliminate the measurement errors or bias in the original model. In the modified Jones model, the non-discretionary accruals are estimated during the periods in which the sample firms have extreme financial performance and earnings management is expected. The modified Jones model increased the explanatory power, thus better reflecting earnings management (Peasnell *et al.*, 2000; Young, 1999). However, the problem that remained unsolved is that the model still presents Type 1 and Type 2 errors, with the former being more likely than the latter as the model experiences high correlations between residuals and earnings performance (Young, 1999; Dechow *et al.*, 2010).

Both aforementioned accrual models were originally proxies for opportunism earnings management and are now adopted broadly to capture both intentional and unintentional factors that influence earnings quality. Both models have been criticised for their levels of estimation errors. First of all, the discretionary accruals tend to be positively correlated with the level of total accruals, which will lead to high total accruals firms generating a high level of discretionary accruals. The question is whether discretionary accruals reflect accounting distortions, if the level of total accruals is positively correlated with abnormal ones or the discretionary accruals are poorly estimated by the accrual models in that a normal accruals component is included in them (Dechow *et al.*, 2010; McNichols, 2001; Young, 1999). Secondly, both models reject the null hypothesis of no earnings management, the higher rejection rate of the Jones and modified-Jones model is due largely to misspecification of the control variables, which led to a low explanation power in abnormal accruals quality investigation (DeFond, 2010; Dechow *et al.*, 2010; Ball, 2013).

4.3.1.2.1.3 Performance matched (Kothari *et al.*, 2005) model

Empirical evidence suggests that discretionary accruals are correlated with firm performance. To address the estimation error and low explanatory power issues of the Jones and modified Jones models, Kothari *et al.* (2005) proposed a performance matching approach by matching the treatment and control firms based on current return on assets (ROA). The authors identified firms as a treatment group from the same industry and a close ROA to the sample firms, deducting the control firms' discretionary accruals from those of the sample ones to generate the performance matched discretionary accruals. They assumed that firms with the same ROA would have the same amount of performance related abnormal accruals. Thereafter, they changed the estimated discretionary accruals of the treatment and control firms matched on the ROA, claiming that this approach would extract the discretionary accruals caused by the event of managers' opportunistic interest.

However, the performance matching approach increases the frequency of Type 2 errors and the residuals produced by the model can only explain a minimal amount of the variance in accruals (Keung and Shih, 2014). As a result, Kothari *et al.* (2005) approach is likely to add noise to the measure of discretionary accruals, which can lead to the extraction of too many and consequently, generates low power accrual quality tests (Dechow *et al.*, 2010).

4.3.1.2.1.4 Dechow and Dichev (2002) model

The concern with the discretionary accrual models is whether they can detect earnings manipulation when it actually occurs. Dechow and Dichev (2002) argued that, in the absence of intentional earnings manipulation, accruals will be systematically related to firm and industry characteristics. Moreover, according to them, since both intentional and unintentional estimation errors imply lower quality accruals and earnings, it is pointless to separate accruals into discretionary and non-discretionary, further suggesting that the benefit of accruals is to adjust for cash flow timing problems. Dechow and Dichev (2002) (DD thereafter) model developed a new measure in the form of working capital accruals and earnings quality. The model estimates accruals as a function of current, past and future cash flows, because the lattermost can be expected through accruals. The residuals from firm-specific regression of changes in working capital on current, past and future cash flows are

accruals estimation errors, with the standard deviation of these residuals indicating the quality of these accruals and earnings.

The DD model is aimed at improving upon the Jones and modified Jones models by more explicitly mapping cash flows into the accruals generating process. The model focuses on investigating the short-term working capital and its reaction to cash flows in the current, past and future periods. The model was designed from the outset as a proxy for both intentional and unintentional factors affecting earnings quality, which is more advanced than the Jones model, being designed to capture earnings management incentives (Dechow *et al.*, 2010). However, the drawback of the model is that it is an unsigned measure[41], which is only intended to capture which firms are more likely to managing earnings, in the absence of a specific discretional prediction. An unsigned measure of accrual quality will lower the power of tests when research predicts earnings management in a specific direction, upwards or downwards. Moreover, it implies a lack of fit in estimation and produces biasness leading to the rejection of the null hypothesis of no earnings management (Hribar and Craig Nichols, 2007).

4.3.1.2.1.5 Modified Dechow and Dichev (2002) model

McNichols (2002) found misspecification in both the Jones (1991) and DD models in that the residuals from the latter are significantly correlated with the change in sales and those of the former are significantly associated with current, past and future cash flows. McNichols (2002) suggested that the researchers should consider the implications of both models and develop a more powerful approach to estimate earnings quality and the role of management discretion in earnings quality.

Following McNichols (2002), Francis *et al.* (2005) adopted the DD model using working capital accruals reflecting managerial estimates of cash flows and the extent to which those accruals do not map into cash flows, changes in revenue and PPE as an inverse measure of accruals quality due to estimation errors. This primarily disaggregates the variation in

[41] The term of "unsigned" refers to the estimation not differentiating income-increasing from income-decreasing earnings management; the most commonly used unsigned measure is the absolute value of discretionary accruals (Hribar, P. & Craig Nichols, D., 2007. The use of unsigned earnings quality measures in tests of earnings management. *Journal of Accounting Research,* 45(5), pp. 1017-1053.).

earnings quality into the portion resulting from the innate application of the accounting system and that resulting from management discretion by adding a discretionary component to the DD model. Dechow *et al.* (2010) argued that the discretionary estimated errors could still reflect estimation errors, which reduce the power of the test. Moreover, the model could induce bias in an unknown direction into the proxy for managerial discretion. Finally, there have been few studies aimed at evaluating the model's test power and biasness.

Owing to the limitation of investigating management incentives, for this research, both modified Jones and DD models will be adopted to investigate the absolute change of discretionary accruals and to what extent short term accruals map into cash flow from operation. First of all, the DD (2002) approach suggests both intentional and unintentional accrual estimation errors as low accruals quality. So, it is pointless to detect earnings management incentives by examining discretional accruals. Hence, the model only investigates the working capital accruals quality without separating accruals into discretionary and non-discretionary. Furthermore, the absolute value of discretionary accruals can avoid the detection of management direction. The unsigned approach can circumvent the investigation of the incentive/opportunistic earnings management aspect. In simple terms of understanding accruals quality without incentives investigation, higher quality of accruals indicates higher earnings quality. Accruals quality is used as a direct proxy for earnings quality investigation (Dechow *et al.*, 2010)

Accruals quality and abnormal accruals

Francis *et al.* (2008) defined accruals quality as a measure of earnings quality based on the view of how closely the accruals are mapped into cash flows, which is measured by the DD model. They pointed out that the limitation of accruals quality measurement by the DD model is that the measure does not capture the effects of more complicated accruals, such as pensions, depreciation, deferred tax assets etc., focusing only on current accruals quality. Whilst abnormal accruals are accruals that are not well explained by firms accounting fundamentals and they are typically estimated by the Jones (1991) or modified Jones (1995) approaches. The absolute value of abnormal accruals is adopted to measure earnings quality, which does not impose a directional sign on management incentives. Whereas, the signed value of abnormal accruals imposes a directional prediction to identify earnings management

incentives. Differentiating absolute value and signed value of abnormal accruals*, Francis et al. (2008)* suggested, distinguishes earnings management (signed value) from earnings quality research (unsigned value).

Taking both accrual quality and absolute value of abnormal accruals quality as proxies to measure earnings quality, the difference in capturing accruals between the DD model and the Jones or modified Jones model is that the measure in the foremost includes accruals that arise from both accounting fundamentals and discretionary sources, whereas the latter two are intended to reflect the portion of accruals that is not driven by accounting fundamentals (Francis *et al.*, 2008; Dechow *et al.*, 2010; McNichols, 2002). The measure of abnormal accruals shows these are determined by taking estimated normal accruals away from total accruals. Moreover, abnormal accruals are intended to reflect reporting influences on accruals quality, not accounting fundamental influences. So, the question is：do these two accruals quality measures capture similar constructs for earnings? Francis *et al.* (2008) suggested how these two measures vary depends on the completeness of the accounting fundamentals (maybe not only including revenues and fixed assets) used to capture the determinants of normal accruals to be subtracted from total accruals. Expanding the accounting fundamentals (SD of CF, SD of sales revenues etc.) to increase the accuracy of accrual quality measures was suggested in their previous study (Francis *et al.*, 2005). In a recently study by Owens *et al.* (2016), the Jones approach was adopted and the accounting fundamentals were expanded by including not only PPE and change of sales, but also, ROA, CF, abnormal stock return, change of CF and change of abnormal stock return. The authors argued that the unsigned residual from Jones (1991) most likely contains both non-discretionary (normal accruals) and discretionary (abnormal) accruals due to model misspecification. They found that idiosyncratic shocks to the firm's underlying economics exacerbate accrual model misspecification, which causes false inferences in studies using abnormal accruals to estimate the level of earnings management (signed) or earnings quality (unsigned).

Table 4.1: Accrual quality estimation models and limitations

Models	Accrual Quality Proxies	Limitations
Jones (1991) model $Acc = \alpha + \beta_1 \Delta Rec + \beta_2 PPE + \varepsilon$	Sales growth and depreciation of PPE, all the variables are scaled by total assets.	Low explanatory power Residuals are highly positively correlated with total accruals and cash flow which creates estimate bias.
Modified Jones model (Dechow *et al.*, 1995) $Acc = \alpha + \beta_1(\Delta Rev - \Delta Rec) + \beta_2 PPE + \varepsilon$	Adjusts the Jones model by excluding growth in credit sales (account receivable) in years identified as manipulation years.	Improves the explanatory power from the Jones model only when revenue is manipulated from credit sales.
Performance matched (Kothari *et al.*, 2005) $DisAcc - Matched\ Firms\ DisAcc$	Based on the Jones and Modified Jones accruals models; matches firm-year observation with another from the same industry and year with the closest ROA.	Low test power Only applies when correlated performance is an important concern
DD model (Dechow and Dichev, 2002) $\Delta wc_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \varepsilon_t$	Accruals are estimated as a function of present, past and future cash flows. The standard deviation is the proxy for earning quality, to evaluate the timeliness of short term accruals mapping into the cash flows.	$\sigma(\varepsilon)$ is an unsigned accrual quality measure. Only focuses on short term working capital and thus, does not attempt to model long term accruals and their reaction to cash flows.
Discretionary estimation errors (Francis *et al.*, 2005) $\Delta wc_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta Rec + \beta_5 PPE + \varepsilon_t$ $\sigma(\varepsilon) = \alpha + \gamma_1 \sigma(CFO) + \gamma_2 \sigma(Sales) + \gamma_3 OperCycle + \gamma_4 NegEarn + \mu$	Adjusted DD model by adding managerial components (McNichols, 2002). It also decomposes the SD of the residual from the adjusted DD model into an innate component to reflect the operating environment and managerial choice.	Innate estimation errors are the predicted components from $\sigma(\varepsilon)$. They did not investigate whether these adjustments help to reduce Type 1 and 2 errors.

4.3.1.2.2 Earnings smoothness

Smoothing transitory cash flows can improve earnings persistence and earnings informativeness (Dechow *et al.*, 2010). Moreover, earnings smoothness captures the degree to which managers use discretion over financial reporting to reduce the variability of earnings relative to the variability of cash flows, which takes place by altering the accounting earnings' component by accruals (Leuz *et al.*, 2003; LaFond *et al.*, 2007; Gopalan and Jayaraman, 2012). If managers attempt to smooth permanent changes in cash flows, this will lead to a less timely and less informative earnings number. There are contradictory views on earnings smoothness as being a proxy of earnings quality, i.e. whether more earnings smoothness indicates higher level of earnings quality or whether the smoothness is through management incentives.

Prior research (Leuz *et al.*, 2003; Lang *et al.*, 2006; Lang *et al.*, 2003; Ball and Shivakumar, 2005, 2006) has found that companies with less earnings smoothing exhibit more earnings variability. Managing towards a small positive income is a sign of earnings smoothing to obtain a lower variability of reported earnings. Burgstahler and Dichev (1997) elicited that firms manage reported earnings to avoid earnings losses and decreases; the frequencies of small decreases and losses in earnings are unusually low, whilst those of small increases in earnings and small positive income are unusually high. Hence, from a loss avoidance reporting incentive perspective, firms reporting a higher frequency of small positive net income will thus indicate a higher accounting quality (Barth *et al.*, 2008). In contrast, smoother earnings may obtain better quality of financial reporting information, if the earnings management is not associated with an opportunistic incentive. If the accounting choice is motivated by opportunistic behaviour, this would impede the informativeness of smoother earnings (Dechow *et al.*, 2010).

Ball and Shivakumar (2006) investigated the role of accruals in asymmetrically timely gains or losses recognition and found that timeliness increased the variability of earnings relative to cash flows, which leads to less negative correlation between accruals and current period cash flow. A high negative correlation between accruals and cash flows indicates managers increase accruals in response to poor cash flow, which is a sign of earnings smoothing (Myers *et al.*, 2007). This implies that a less negative correlation between accruals and cash flows means less earnings smoothing, whilst also indicating higher earnings quality.

In contrast, the findings of an earlier study by Healy (1985) suggest that the higher variability of earnings can be associated with "big bath"[42] accounting. Some researchers have revealed that if there are errors in estimating accruals, a less negative correlation between accruals and cash flows could be a sign of lower earnings quality (Richardson *et al.*, 2006, 2005; Dechow and Dichev, 2002; Xie, 2001).

Moreover, the survey evidence from Graham *et al.* (2005) and Dichev *et al.* (2013) shows a strong preference for a smooth earnings path. That is, financial executives claimed they adopted earnings smoothing, because inconsistency of earnings would influence the future share price and thus, harm investors' interest. Moreover, it would increase firms' risk and cost of capital, because if they broke the pattern of consistent earnings growth, they may experience a negative abnormal share return in that year (DeAngelo, 1986). Both Graham *et al.* (2005) and Dichev *et al.* (2013) claimed that the intention of earnings management is not for management's own benefit and it that it prefers not to use discretionary accruals to manage earnings. Bypassing the focus of the opportunistic incentives in earnings smoothness studies, smooth reported earnings will benefit both firms and investors in the financial market. For, for as has been expounded in prior studies, the main reasons for earnings management is to increase firms' share returns as well as reduce financial risk and the cost of capital (Watts and Zimmerman, 1986; Dechow *et al.*, 1996; Francis *et al.*, 2002; Schipper and Vincent, 2003) to maintain the stability of the financial market.

While prior studies have not provided a clear conclusion about earnings smoothness as a proxy for earnings quality. To understand better the consequences of earnings smoothness, a measure of smoothness that is capable to distinguish artificial smoothness from that of fundamental performance is needed (Dechow *et al.*, 2010).

4.3.1.3 Research design issues of earnings management

It has been remarkably difficult for researchers convincingly to document earnings management. The major design issue for researchers is that they have to estimate earnings before the effects of earnings have been managed under managerial intention. However,

[42] Firms (normally already in financial difficulty) may manipulate the financial statement to make the accounting figures worse in the previous year to enhance next year's earnings.

managerial intent unobservable, so researchers have to identify the conditions under which managers' incentives are likely to be high. Previous studies come up with different types of incentives, such the opportunistic perspective of earnings management. Regarding which, less variability of reported earnings is preferred by the managers, who can maximise their benefits from bonus plans (Guidry *et al.*, 1999), reduce attention from regulatory bodies (Collins *et al.*, 1995), mitigate the range of extreme gains or losses (Guay *et al.*, 1996) and meet the earnings expectations of investors and analysers (Degeorge *et al.*, 1999).

Ball (2013) considered earnings management theory regarding the management incentives perspective as incorrect. He argued that researchers have strong prior, ethical and moral views of management incentives: bonus and/or tax avoidance. Schipper (1989) pointed that the earnings management is also inherent in the current reporting system, which allows for a variety of accrual options available across all countries' accounting standards. Within the accounting standards or principles, some changes in the amount of managerial discretion might even increase the earnings relevance value level in the financial market (Schipper, 1989; Graham *et al.*, 2005). Schipper (1989) paper questioned whether there are adverse consequences of earnings management, referring to "managerial productivity", which will send potentially informative signals to the investors. The paper questioned what financial information would be produced in the absence of purposeful intervention.

Moreover, there is no widely accepted measurement of discretionary accruals, which is a proxy measure of earnings quality (previous section). Dechow *et al.* (1996) suggested such accruals are not directly related to underlying economy conditions and can be easily manipulated. Most research in the earnings management field has used the accrual principle in testing earnings variability. However, the most used Jones (1991) model in separating discretionary accruals from total accruals has been heavily criticised. All the models for the earnings management investigations reject the null hypothesis of no earnings management and hence, the knowledge of the determinants of accruals in the absence of manipulation is limited.

There is no theory that provides general support for earnings management (Ball, 2013). Managerial discretion can also improve the ability of earnings to reflect economic value (Subramanyam, 1996). In the earnings management research; however, the role of accruals

has been highlighted in a way that complements the studies with information content of cash flows versus accruals (Subramanyam, 1996; Sloan, 1996; McNichols and Wilson, 1988; Jones, 1991; Holthausen *et al.*, 1995; Francis *et al.*, 2005; Dechow *et al.*, 1995; Dechow and Dichev, 2002; Burgstahler and Dichev, 1997). Thereafter, the major earnings management study concerns have been how to define earnings quality in the presence of earnings manipulation, whether earnings management always decreases earnings quality or whether are there special circumstances in which earnings management could be considered as a positive management instrument to increase some measure of earnings quality.

This subsection has reviewed literature on earnings management measurement and considered the issues of research design, which have led to contested empirical evidence and conclusions in the earnings quality studies. The aggregate accruals testing Jones and modified Jones models has received the most criticism, despite being the most adopted for detecting managerial choices. The current study's design involves adopting both the absolute value of discretionary accruals from the modified Jones model and the SD of working capital accruals from the DD model. Both abnormal accruals quality and working capital accruals quality models enable the investigation of accruals quality with an intuitive explanation, whilst evading the major issue of opportunism in earnings management research.

4.3.2 Earnings persistence

Following on from the previous section regarding accrual quality as one of the earnings quality attributes, this subsection reviews earnings persistence literature as another proxy for earnings quality. Among the four aspects of earnings quality, much prior research has involved analysis of discretional accruals, value relevance and earnings timeliness in recent years, whilst earnings persistence has been explored in accounting research for decades. This part of the chapter, firstly, presents reviews from the existing literature regarding earnings persistence, which is followed by consideration of the earnings persistence measurement models and the research design issues in earnings persistence study.

4.3.2.1 Prior literature on earnings persistence

There are two streams regarding earnings persistence studies: the first, focuses on the predictive aspect of persistent earnings and assumes that more of these will provide better inputs to equity valuation models, thus more persistent earnings are of a higher quality than less persistent ones (Sloan, 1996; Richardson *et al.*, 2006, 2005; Dechow and Ge, 2006; Dechow *et al.*, 2008). The second stream is aimed at addressing whether earnings is decision useful and after their release, whether this improves equity valuation outcomes (Lev and Thiagarajan, 1993b; Abarbanell and Bushee, 1997). However, this stream faces research design difficulty since the true value of firms is unobservable (Dechow *et al.*, 2010).

4.3.2.1.1 Earnings persistence

In the early stage of the earnings persistence study, the evidence showed that earnings follow a "random walk", whereby changes in accounting earnings are unpredictable for the future earnings' performance (Ball and Watts, 1972; Watts and Leftwich, 1977; Foster, 1977). Ball and Watts (1972) further argued that due to earnings smoothing attempts in the corporation, earnings persistence cannot successfully provide interpretations for a firm's future earnings. Freeman *et al.* (1982) contended that the evidence that earnings are following a "random walk" is only true in a limited sense. A modest enlargement of the predictive information set will lead to rejection of the hypothesis that earnings changes are unpredictable, so the earnings "random walk hypothesis" is incorrect. For their study, they investigated the predictablity of book rate-of-return on earnings changes and found that book rate-of-return has predictive content with respect to earnings changes, hence rejecting the "random walk" hypothesis. Ou and Penman (1989), using a random walk model, elicited that market prices naively react to future earnings, and showed the possiblity of predicting future stock price given only current earnings along with the historical behaviour of earnings. Bernard and Thomas (1990) were the first to use a less restrictive model than a random walk model to investigate whether present quarterly earnings can predict future quarterly earnings and assessing the extent to which the predictable stock returns are consistent with the predictions of the naïve earnings expectations.

Dechow *et al.* (2010) contended that accruals have been the most studied earnings component in the earnings persistence studies since Sloan (1996). Sloan (1996) argued that the random walk model regresses current earnings on past ones without seperating the cash flows and accruals component. In his study, he decomposed earnings into cash flows and accruals earnings to investigate the predictability of both components on future earnings, suggesting that the persistence of earnings performance attributable to the accruals is smaller than that forcash flows. He further investigated whether stock prices are captured differently by the accruals and cash flows components of earnings. The results revealed that market prices act only towards earnings and fail to reflect fully information contained in the accrual and cash flow components of current earnings until that information impacts on future ones.

Fairfield *et al.* (2003) extend the work of Sloan (1996) by suggesting that accruals are a component of the growth of net operating assets and of profitability. They investigated whether the lower persistence of accruals is driven by the profitability or growth in accruals. They found that both the components of growth in net operating assets accruals and growth in long term net operating assets have a negative association with a one-year-ahead return on total assets. Similar evidence also emerged after controlling for current profitability. The evidence shows that the market overvalues accruals and growth in the long-term, whilst the net operating assets relate to their one-year-ahead return on total assets. So, they concluded that their findings were more general and criticised the finding of Sloan (1996): lower persistence of accruals is relative to operating cash flows, which is a specific manifestation of their research. They declared that the lower persistence of accruals arises, because they are a component of growth in net operating assets. The different persistence level of accruals is less likely to result from other features, such as accrual manipulation. The evidence of low persistence of accruals is related to operating cash flows and is more likely to result from conservative accounting than manipulation.

The paper of Richardson *et al.* (2005) also built on the work of Sloan (1996) and further drew a link between accrual subjectivity and accounting information reliability. They separated accruals into different categories: total accruals, change in working capital, change in current operating assets, change in current operating liabilities, change in non-current operating assets, change in non-current operating liabilities, change in financial assets,

change in financial liabilities as well as change in short term and long-term investment. They further classified these components into different hierarchy levels of reliability, by regressing the one-year-ahead return on total assets on different components of accruals, concluding that less reliable accruals are associated with lower earnings persistence. In another paper by Richardson *et al.* (2006), it was argued that other than the growth and profitability components, as proposed by Fairfield *et al.* (2003), accrual estimation error is another important factor inducing the lower persistence of accruals. They further decomposed accruals into growth and efficiency accounting distortion, finding a significant negative relationship between the one-year-ahead return on total assets and accruals, which is consistent with the findings of both Sloan (1996) and Fairfield *et al.* (2003).

Dechow *et al.* (2008) expanded upon the work of Sloan (1996) by investigating whether the cash component of earnings is more persistent than the accruals one. They decomposed the cash component of earnings into: the change in the cash balance, including annual cash and short-term investment balance, net cash distributions to debt holders and net cash distributions to equity holders. The findings are consistent with those of Sloan (1996), that the cash flow component of earnings is associated with a higher level of persistence than the accruals component. They further elicited that the cash component level of persistence depends on its subcomponent relating to equity; the persistence of a change of net cash distributions to equity holders is higher than that of a change in net non-interest cash contributions to debt holders. Both subcomponents of cash earnings have higher earnings persistence than the change in annual cash flow and short-term investment balance. Moreover, both have the same persistence level as accruals. They suggested that investors not only misprice accrual earnings, for they also do so regarding the change in the cash balance. In a study by Dechow and Ge (2006), it was also found that accruals improve the persistence of earnings relative to cash flows in high accrual firms, whilst reducing this persistence in low accrual ones. They suggested that the reason for this is that it is driven by special items. They explained that investors misunderstand the transitory nature of special items, which leads to the low accrual-special item firms having higher future equity returns than other low accrual firms.

Thomas and Zhang (2002) documented that the negative relation between accruals and future returns is mainly due to inventory changes, Allen *et al.* (2013) suggested that inventory accruals result in less persistent earnings, because of measurement error relating to the inventory write-downs or write-offs. They claimed that the mispricing of accruals is driven by both accrual estimation error and firm growth. Moreover, accrual estimation error is the least persistent component of earnings, while accruals relating to firm growth are less persistent than cash flows (ibid). The study of Allen *et al.* (2013) regarding the time-series properties of accruals, involved testing the accruals reversing process. It was concluded that most accrual reversals represent "good" accruals that correctly anticipate temporary fluctuations in working capital. This further demonstrates that the modified Dechow and Dichev (2002) model by adding "Sales Growth Rate" and "Employee Growth Rate" variables can be used to control for "good" accrual reversals.

4.3.2.1.2 Fundamental outcome and earnings persistence

Lev and Thiagarajan (1993a) recommended 12 fundamental signals[43] based on the level of estimating firm value and future earnings performance, suggesting that two, namely accounts receivable and inventories, are the leading indicators for future earnings. They argued that an increase in these two indicators is regarded as bad news for future earnings, because it increases the difficulty in generating sales and further, reduces firm value. Abarbanell and Bushee (1997) investigated whether changes in fundamental information induce subsequent changes in earnings information, by employing fundamental signals from Lev and Thiagarajan (1993a) and an empirical approach put forward by Penman (1992). They found that accounts receivables are positively related with future earnings (one year-ahead) changes and that receivable growth also indicates sales growth. In respect of inventory, they elicited consistent evidence with that of Lev and Thiagarajan (1993a) that poor inventory accruals quality has positive future changes in per share earnings. Both studies findings suggested that fundamental information affects earnings property.

[43] Inventories, accounts receivable, capital expenditure, R&D expenditure, gross margin, sales and administrative expenses, provision for doubtful receivables, effective tax, order backlog, labour force, LIFO earnings and audit qualification.

4.3.2.2 Earnings persistence approaches

This subsection presents two approaches from prior research: the time-series and economic determinants approaches. Both approaches are from the earnings predictive aspect of study and are designed to estimate the predictability of current earnings on future ones.

A simple model to estimate earnings persistence was proposed Freeman *et al.* (1982) as:

$$Earnings_{t+1} = \alpha + \beta Earnings_t + \varepsilon_t$$

Earnings are operating income scaled by total assets. A higher β implies more persistent earnings, thus indicating a better earnings quality.

Sloan (1996) extended the above simple model by decomposing total earnings into cash flow and accrual components of earnings to test whether the latter is less persistent than earnings performance attributable to the cash flow component:

$$Earnings_{t+1} = \alpha + \beta_1 CF_t + \beta_2 Accruals_t + \varepsilon_t$$

$\beta_2 < \beta_1$ implies that the cash flow component of earnings is more persistent than the accrual one.

Based on both Freeman *et al.* (1982) and Sloan's (1996) approaches, the estimation model for earnings persistence is extended by adding extra control variables:

$$Earnings_{t+1} = \alpha + \beta_1 Earnings_t + \beta_2 Other\ finanical\ statement\ components + \varepsilon_t$$

Dechow *et al.* (2010) argued that the time-series models from Freeman *et al.* (1982) and Sloan (1996) neglect the impact of firms' fundermental performance and accounting choice, suggest that earnings persistence is likely to be driven by the business in which the firm operates and the accrual accounting choice.

An earlier study of Lev (1983) involved investigating whether inter-firm differences in product type, industry competition, capital intensity and firm size are associated with earnings persistence. The author concluded that stablity of earnings is largely determined by

the fundamentof economic and argued that, if accounting choices affect firms' earnings generating process, the effect will be examined by the parameter estimated in a time series model (Watts and Zimmerman, 1979). Researchers adopted the economic determinant approach since Lev (1983) to find similar evidence that the variablity of annual earnings is associated with some economic factors, including: firm size, product-type, the degree of capital intensity, the industry entrying barriers (Baginski *et al.*, 1999; Richardson *et al.*, 2006).

In this study, the persistence of earnings is considered to predict future earnings, thereby facilitating decision-making to accounting information users. Hence, a time-series approach is adopted for measuring the property of earnings' predictability for the future earnings, whilst the economic determinants approach for identifying the property of earnings at the individual firm level will not be utilised.

4.3.2.3 Limitations of earnings persistence studies

In prior studies, the persistence of earnings was taken as being an important earnings quality property. Researchers attempted to identify different determinants of earnings persistence by applying time-series and fundamental outcome approaches to investigate the role of persistent earnings guidance in the financial market and smooth earnings management incentives (Ball and Watts, 1972). In general, the outcomes of the studies have suggested that managers of firms with more volatile earnings are less likely to provide guidance for the investors to forecast firms' future earnings performance (Waymire, 1985). Hence, a higher level of earnings persistence indicates better earnings quality for outside investors and investment efficiency. However, it is difficult to identify whether firms tend to smooth earnings to achieve a certain level persistence or that the earnings are fundamentally persistent. To overcome the identification issues of earnings persistence study, researchers have attempted to find the determinants of earnings persistence. Earnings persistence studies are not only investigated at the whole annual earnings persistent level, for they have also decomposed earnings into different components to identify the factors that may induce the persistence of earnings information.

To summarise the prior research, it has considered whether current earnings could be a good indicator for future earnings and has provided insights into whether earnings

persistence is an appropriate proxy for earnings quality (Dechow *et al.*, 2010). The earnings persistence study issues raised include the method used to identify earnings persistence and its contested determinants.

4.3.3 Earnings timeliness

Following the previous subsections regarding accrual quality and earnings persistence proxies of earnings quality, in this one the literature of earnings timeliness is reviewed as another proxy for earnings quality adopted for this study. This part of the chapter, firstly, presents reviews from the existing literature regarding earnings timeliness, followed by earnings timeliness estimation models and the research design issues in this field of study.

4.3.3.1 Prior literature on earnings timeliness

Timely loss recognition is a significant property of accounting earnings (Basu, 1997). The relevance and reliability are limited by earnings timeliness (Watts, 2003b, a). Watts (2003a) suggested that, if firms do not report earnings in a timely manner, but rather, gather all information before presenting it to the public, then, whilst it is more reliable, it might no longer be relevant. On the other hand, if firms present timely information, but it is insufficient, then its reliability may be reduced, which leads to inaccuracy.

4.3.3.1.1 Earnings timeliness definition

Accounting recognition is considered as conservative when firms recognise losses timelier than for gains (Basu, 1997). Basu (1997) predicted and found that earnings respond more to negative returns (bad news) than to positive ones (good news). Since this study, earnings' timely losses recognition or accounting conservatism has been extensively explored in the accounting literature. There have been a number of accounting research studies about earnings timeliness that employed Basu (1997) approach.

Beaver and Ryan (2005) divided conservatism in conditional and unconditional forms. They defined accounting conservatism as the understatement of the book value of net assets relative to their market value of net assets. Regarding unconditional conservatism (*ex ante* or news independent), they defined this as "*aspects of the accounting process determined at the inception of assets and liability yield expected unrecorded goodwill*", such as immediate expensing a recognition of intangibles and accelerated depreciation of PPE. Conditional conservatism (*ex post* or new dependent) refers to "*book values are written down under sufficiently adverse circumstances but not written up under favourable circumstances*". They

explained that the reason for conditional conservatism is to counterbalance managers' income- increasing incentives. For the current study, earnings timeliness regarding conditional conservatism is investigated. The following reviewed literature is in respect of the timely losses' recognition perspective.

4.3.3.1.2 Information demand of the equity market and timeliness

There are some studies that have provided evidence that equity market demand for decision usefulness information is one of the determinants of earnings timeliness. Ball and Shivakumar (2005) adopted Basu (1997) tendency-to-reverse measure to compare timely loss recognition between public and private firms in the UK, finding that loss recognition is more timely in the former than the latter due to the equity market information demanding investment decision usefulness. Their study involved examining timely loss recognition by employing market-based and accrual-based models to test data during the period between 1990 and 2000 in the UK. They found that negative earnings changes tend to reverse in the next period, whilst positive earnings changes tend to persist. The results are consistent regarding accounting timeliness, when adopting both the accrual-based earnings timeliness measurement model and the market-based earnings timeliness measurement model. These authors were the first to propose time-series measurement of accounting conservatism by not interpreting bad news as negative stock returns.

Ball *et al.* (2003) also adopted Basu (1997) reverse regression to investigate whether there is difference in timely losses recognition in East Asian countries (Hong Kong, Malaysia, Singapore and Thailand), who share same accounting standards and legal system origins. They found that Hong Kong exhibits the highest timeliness, which is consistent with its better equity market-oriented reputation. Whilst Thailand has the lowest timeliness owing to the country's less developed equity market, which is under strong political influence. They concluded that timely losses recognition is endogenously related to the countries' equity capital market incentives, thus not being driven purely by their accounting standards and law system.

Ball *et al.* (2008) contended that debt markets demand high scores on timeliness, because debt covenants utilise reported numbers and equity markets do not rate financial reporting consistently with timeliness metrics, but they can control for total information

incorporated in share prices. They used the R^2 estimation from Lev (1989), finding that loss recognition is more timely for firms in countries with greater importance of the debt market relative to the equity market. In other words, countries relying on the debt market for firms financing have lower levels of timely loss recognition in the equity market than those relying on the latter market to raise capital.

The above studies suggest that timeliness has an endogenous component that is related to the equity market development and incentives. That is, it is not purely determined by the orientation of the countries' accounting standards or legal system.

4.3.3.1.3 Institutional factors and timeliness

In addition to identifying the equity market incentive as a determinant of earnings timeliness, there are studies that have examined the regulatory system and enforcement as its determinants. Ball *et al.* (2000) examined over 40,000 firm-year accounting incomes reported during 1985-1995 across seven countries and found that the reported earnings are less timely and less conservative in code-law countries than in common-law ones, which is entirely due to the greater sensitivity to economic losses from the equity market for the latter. They further explained that accounting information prepared under common-law accounting standards is of contemporary interest and that the IFRS reflects a largely common-law approach to timely disclosure. They then extended the sample by bringing in other 18 countries and concluded that important properties of accounting income are a function of the varying demands that it satisfies under different institutional arrangements.

Building on the study of Ball *et al.* (2000), Lara and Mora (2004) investigated whether there is difference regarding earnings timeliness in common law and code law countries in Europe, by employing two accounting conservatism measures: market-to-book and earnings asymmetry. They elicited that code law countries in Europe have larger balance sheet conservatism, there is no significant difference between code law and common law countries in earnings conservative practices. Bushman and Piotroski (2006) researched whether key characteristics of country-level institutional factors induce differential asymmetric recognition of economic losses and gains. The key characteristics of country-level institutional factors included legal/judicial system, securities laws, political economy and tax regime.

Those factors create incentives that influence the behaviour of market participants. They included all the countries with sufficient firm-level accounting and returns data during 1992-2001 and estimated using a model modified from Ball *et al.* (2000) and Ball *et al.* (2003). They found that firms in countries with strong investor protection have more timely losses recognition than those with weak investor protection after controlling for legal origin: common or code law. Strong public enforcement aspects of securities law slow timely gains recognition and private enforcement aspects of securities law have no impact on conservatism. Low risk of expropriation of assets by the state and low state ownership of enterprises encourage timely losses recognition. Firms in code-law countries with high state involvement in the economy have more timely losses recognition than code-law ones with low state involvement. In contrast, firms in common-law countries with low state involvement are associated with higher timely losses recognition than in common-law ones with high state involvement in the economy. Moreover, financial managers seem to be able to adjust their financial reporting in response to the nature of the state's involvement. On the findings, they suggested that cross country variation should be considered as an additional explanation for accounting conservatism.

However, Barth *et al.* (2008) estimated timely loss recognition in 21 countries after adopting common-law oriented accounting standards and did not find a statistical difference in earnings timeliness between different accounting regimes. Francis and Wang (2008) suggested that accounting quality varies across countries mainly according to whether or not there is enforcement by the Big 4 auditors, with timely loss recognition being higher for firms with Big 4 auditors. They documented that the enforcement by the Big 4 auditors is higher in countries with stronger investor protection and that common-law countries, in general, have this.

The aforementioned studies suggest that country-level institutional factors should be considered for accounting conservatism. Pope and Walker (1999) also held that country institutional differences should be taken into account, arguing that earnings measures are essential for the analysis of earnings timeliness in different accounting regimes. Their study was based on Basu's model to compare the earnings timeliness between US and UK firms during 1976-1992. They employed two different types of earnings in their estimation:

ordinary earnings and earnings after extraordinary times. They reported that write-offs of large transitory losses through extraordinary items were tolerated during their research period in the UK before the introduction of IFRS No.3 and hence, UK firms were more likely to categorise a bad news earnings component as extraordinary items relative to US firms. Thereafter, they found that earnings before extraordinary items under US GAAP were timelier than under UK GAAP. However, earnings after extraordinary items were more sensitive to loss reporting under UK GAAP than under US GAAP. They concluded that the relative of timely losses recognition are sensitive to the earnings measures under different accounting regimes.

In China, the introduction of conservatism was only after 1993 since China had long been a socialist economy and accounting practices were controlled by the government, which rejected implementing accounting conservatism and remained hostile even after that date. Xiaohui and Yuehua (2007) suggested that conservatism did not exist during 1995-2000 in China, but did gain acceptance after the 2001 implementation of the Accounting System for Business Enterprises. Cullinan *et al.* (2012) examined the relationships between ownership structure and accounting conservatism in China. They considered three ownership structure issues: the influence of the largest shareholders, whether the largest shareholder was the government, and the power of minority shareholders. They found that the high proportion of shares held by the largest shareholders leads to low accounting conservatism, state ownership does not influence the relationship between the largest shareholders' ownership and accounting conservatism, whilst privately owned firms where the state owns a minority interest are more conservative than those without this form of ownership. Lin and Tian (2012) investigated the impact of accounting conservatism on IPO under-pricing in China and elicited that conservatism helps to reduce information asymmetry facing IPO firms and mitigates IPO under-pricing.

The literature regarding accounting conservatism is limited. With regard to the impact of China's change in accounting standards on earnings timeliness and conservatism, the literature is absent. Currently a code-law country, will introducing common-law oriented accounting standards increase earnings timeliness is the question.

4.3.3.2 Estimation models of earnings timeliness

There are two categories regarding earnings timeliness models: market-based and accrual-based.

4.3.3.2.1 Market-based model

Some researchers have contended that the information reflected in share prices is richer than that in accounting earnings and that share returns reflect the present value of future net cash flows expected by the financial market (Beaver *et al.*, 1980; Kothari, 2001). Whilst accounting earnings regarding the accrual processes will lag up to four years of price changes in the stock market (Basu, 1997) and hence, share prices lead earnings. The most frequently used measure of earnings timeliness is the reverse earnings-return regression of Basu (1997), which is aimed at proving asymmetric earnings timeliness, that earnings are more strongly associated with concurrent unexpected losses than unexpected gains.

$$X_{it}/P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it} + \varepsilon_{it}$$

where, X_{it} is earnings per share, P_{it-1} is price per share at the beginning of the fiscal year, R_{it} is the stock return from 9 months before fiscal year-end to 3 months after fiscal year-end and DR_{it} represents the dummy variable =1, if $R_{it} < 0$, =0 otherwise. Higher β_1 implies more timeliness of the incurred losses in earnings.

Basu (1997) suggested that the property of earnings persistence differs from that of earnings timeliness, whereby higher loss recognition will consequently lead to lower earnings persistence. If earnings information persists, it is less likely to capture economic outcome on a timely basis. Hence, the author provided a second measure, one not based on share returns, but rather, on the change in income to test the timley loss recognition and to explain how negative earnings are more likely to reverse in the following period. The model is adopted from Ball and Shivakumar (2005) as follows:

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t$$

where, ΔNI_t is the change in income from t-1 to t scaled by a beginning book value of total assets and $D\Delta NI_{t-1}$ is a dummy taking the value 1, if ΔNI_{t-1} is negative. $\alpha_2 + \alpha_3 < 0$

implies that timely losses recognition is transitory and hence, reverse, whilst $\alpha_3 < 0$ implies that economic losses are recognised in a timelier manner than gains and therefore, negative earnings changes will be less persistent and will tend to deliver reverse more than positive earnings changes. Following the first model in Basu's paper, the second model developed by Ball and Shivakumar (2005) was designed to test whether negative earnings are less persistent than positive earnings since these are more than likely to reverse in the following year. In this study, earnings persistence is investigated in a separate chapter.

Roychowdhury and Watts (2007) investigated the relation between market-to-book ratio and the earnings timeliness measure from Basu's reverse model by employing forward and backward accumulated earnings and stock returns instead of single year earnings and stock returns. They found a positive correlation between backward accumulated returns and the year-end market-to-book ratio. This suggests that market-to-book ratio is positively correlated to Basu's earnings timeliness measure and they concluded that Basu's earnings timeliness model is more powerful when employing accumulated earnings and returns for empirical analysis than adopting single-year earnings and returns.

4.3.3.2.2 Accrual-based model

Ball and Shivakumar (2005) suggested that timely gain and loss recognition are based on expected not realised cash flows and thus, are accomplished through accruals. They argued that Basu's (1997) reverse model cannot distinguish transitory gain or loss components in earnings from random accrual estimation errors and developed an alternative model that exploits the likelihood that timely loss recognition occurs through accounting accruals.

$$ACC_t = \beta_0 + \beta_1 DCFO_t + \beta_2 CFO_t + \beta_3 DCFO_t * CFO_t + \varepsilon_t$$

The model provides roles for accruals to: mitigate the noise in cash flow and asymmetric recognition of unrealised gains and losses. Where, CFO_t is the difference between earnings and accruals; $DCFO_t$ is a dummy =1, if CFO_t is negative, and 0 otherwise; and ACC_t is measured as:

$$ACC_t = \Delta Inventory + \Delta Debtors + \Delta other\ current\ assets - \Delta creditors - \Delta other\ current\ liabilities - Depreciation$$

$\beta_2 < 0$ is due to the noise reduction role of accruals and $\beta_2 > 0$ is due to the timely gain and loss recognition; and positive β_3 implies that accrual losses are more likely in periods of negative cash flows. The higher β_3 indicates more asymmetric recognition of unrealised gains and losses by mitigating the noise in cash flows. In Ball and Shivakumar (2005) study, they expanded losses timely recognition to how timely negative accruals are recognised in total accruals.

The concern of the market-based timeliness model is the underlying assumption of market efficiency and hence, the variation in timeliness could be cause by the variation of the market return generating process rather, than variation in earnings quality (Dechow *et al.*, 2010). Furthermore, the market-based model uses per share return as a proxy for earnings quality; however, per share returns reflect all other market information, but not just information on earnings (Givoly and Hayn, 2002).

Take into consideration the limitations of Basu's market-based asymmetry timeliness model, and accruals quality will be investigated in a separate chapter. Hence, in the timely recognition of losses chapter, the accrual-based timely recognition model developed from Ball and Shivakumar (2005) will not be adopted. For this study accrual quality and earnings persistence are taken as accounting-based earnings quality investigation and timely losses recognition and value relevance as market-based earnings quality investigation. Accordingly, the Basu (1997) market-based timely losses recognition model is adopted, but modified with Roychowdhury and Watts (2007) model and the tested dependent variable is accumulated earnings deflated by the share price. Furthermore, this study tests the frequency of large losses reports from Barth *et al.* (2008).

4.3.3.3 Limitations of earnings timeliness studies

Prior studies have shown that earnings timeliness has been widely used in accounting research. It is held that earnings timeliness delays the recognition of positive earnings to a future period and recognises negative earnings in the current one. Hence, a change in positive earnings tends to be more persistent than a change in negative earnings (Basu, 1997; Bushman *et al.*, 2011). Up until now, the market-based earnings timeliness model has been the predominant method adopted by researchers.

However, the limitation of market-base model is that it only applies to equity market demand as an earnings quality proxy. Dechow *et al.* (2010) argued that this does not provide evidence as to whether the equity market should demand more timely recognition and thus, it cannot be concluded that better earnings timeliness improves decision outcomes. Furthermore, researchers have also found that timeliness estimated from Basu's market-based model has a negative relation with firm-specific conservatism (unconditional conservatism) (Givoly and Hayn, 2002) and thus, it cannot measure unconditional accounting conservatism.

In conclusion, since Basu's (1997) paper, studies have distinguished conditional conservativism, more timely losses recognition is better than more timely gains recognition, from unconditional conservatism, lower book value of assets in the early periods of an asset life from an ex ante policy adoption. However, whether accounting conservativism increases or decreases the decision usefulness remains a controversial issue (Watts, 2003b, a). Moreover, the proxy used to measure accounting conservatism by Basu's (1997) model is problematic. Furthermore, institutional factors play an important role in the quality of earnings timeliness; a more timely recognition of losses is often associated with a conservative accounting system and legal system (Pope and Walker, 1999). Last but not least, the accrual earnings component is still a significant information source for the analysis of earnings timeliness (Ball and Shivakumar, 2006).

4.3.4 Earnings value relevance

Following the previous subsections regarding accrual quality, earnings persistence and timeliness as proxies of earnings quality, this subsection reviews literature on earnings value relevance as another attribute for earnings quality adopted for this PhD study. This part of the chapter, firstly, presents reviews from the existing literature regarding earnings value relevance, followed by consideration of earnings value relevant estimation models and then, the research design issues in earnings value relevance study are discussed.

4.3.4.1 Prior literature on earnings value relevance

The value relevance of accounting information has been studied from many perspectives. One of the first value relevance studies was undertaken by Miller and Modigliani (1966), who used data on the market values of stocks to identify drivers that influence stock returns. Miller and Modigliani (1966) did not use the term value relevance; however, they did attempt to develop effective methods for inferring the cost of capital relevant for optimal investment decisions from data on the market value of stocks.

Ball and Brown (1968) examined the associations between accounting earnings and stock returns. Their paper has had an enormous influence on modern empirical accounting research, for it has led to an era of research into the information perspective of accounting data (Ohlson, 1995). Subsequently, further research involved examining the relation between stock returns and accounting information without utilising the notion of "value relevance". Amir *et al.* (1993) were the first to use the term for describing the association between accounting earnings and stock returns. Accounting information is drawn upon in value relevance analysis to determine the market value of the company. Francis and Schipper (1999) defined value relevance in two ways: the ability of the financial information contained in the financial statement and the explanatory power of accounting information for measuring market value, such as the ability of earnings to explain annual market-adjusted returns and the ability of earnings and book values of assets and liabilities to explain market values of equity. The definition of earnings quality contains financial information reliability and explanatory power in the financial market. The accruals reliability literature has been reviewed, to a certain extent, in previous sections of accruals quality and earnings persistence.

The next subsection is focused on the explanatory power of accounting information in the financial market.

4.3.4.1.1 Explanatory power of accounting information in the stock market

From the perspective of detecting the ability of financial information contained in the financial statement, in vast numbers of studies the value relevance of earnings, accruals and cash flows reported in financial statements has been explored (Sloan, 1996; McInnis and Collins, 2011; Dechow, 1994; Badertscher *et al.*, 2012). However, there are different perceptions about the explanatory power of earnings, accruals and cash flows. Watts and Zimmerman (1986) suggested that management can use its information advantage to manipulate accruals opportunistically, especially discretionary accruals, such as accounts receivables and inventory accounts. These are greatly subject to earnings manipulation through accounting techniques like premature revenue recognition, asset write down or write off (Dechow *et al.*, 1995, 1996) and hence, the cash flow component of earnings is preferred to estimate their explanatory power.

In contrast, Dechow (1994) argued that firm performance depends ultimately on the ability to generate cash receipts in excess of disbursement. They investigated different circumstances under which accruals are predicted to improve earnings' ability to measure firm's performance, as reflected in stock price. The authors proposed that realised cash flows could be used to measure underlying performance; however, Dechow (1994) argued that, over finite intervals, reporting realised cash flows is not necessarily informative, because these experience more timing and matching problems in comparison with accruals in measuring a firm's performance. The evidence in Dechow (1994) paper shows that accrual earnings can mitigate the timing and matching problems of cash flows recognition and that earnings will also suffer from such problems over short time intervals, but to a lesser extent than realised cash flows.

Dechow (1994) debated whether accruals play a bilateral role in improving the ability of earnings to measure firm underlying performance. On the one hand, accrual rules can improve the timing of cash flow recognition in earnings and so, earnings will more closely reflect firm performance than realised cash flows. On the other hand, the objective and

verifiable requirements of accruals can limit management's discretion, reduce the possibility of providing false information for a private gain, whilst also reducing the usefulness of reporting earnings in circumstances where there is private information of management concerning firm performance. Therefore, earnings can be a preferred proxy for measuring firm's performance, while the existing accruals are the outcome of efficient contracting, which provides management with limited flexibility to manipulate earnings.

The findings in Dechow (1994) paper are coherent with those of Sloan (1996) that stock price is strongly associated with earnings and not with recognised cash flows. Sloan (1996) provided deeper insight into the information content of accounting earnings. He examined whether stock prices reflect information about future earnings contained in the accrual and cash flow components of current earnings. He also probed to what extent current earnings performance persisting into the future depends on the relative magnitudes of the cash flow and accrual components of current earnings. In his paper, Sloan (1996) defined accruals as representing the difference between accounting earnings and cash flow, linked market returns to cash flow and accrual components of earnings and found firms with relatively low accruals experience higher abnormal returns in the future, whilst those with relatively high levels of accruals obtain lower ones in the future. The results indicate the persistence of earnings performance depends on the relative magnitudes of the cash and accrual components of earnings. Moreover, Sloan (1996) elicited that stock prices act as if investors fixate on earnings and fail to identify correctly the different properties of the cash and accrual components of earnings. Hence, accruals perform better in improving earnings' ability to measure a firm's underlying economy, as reflected in the stock price (Sloan, 1996; Dechow, 1994).

Dechow (1994) and Sloan (1996) stated that earnings are the summary measure of a firm's performance produced under the accrual basis of accounting, which emphasises the role of the accrual component in predicting firm performance. However, the use of accruals introduces management incentives and earnings reliability problems. Management has some discretion over the recognition of accruals, which can be used to manipulate earnings depending varied management incentives. Since managers have superior information about their firm's cash generating ability (Watts and Zimmerman, 1986; Watts and Zimmerman,

1979; Holthausen *et al.*, 1995; Healy, 1985), they will use their discretion to manipulate accrual earnings and thus, the earnings of accrual component will become less reliable than cash flows one.

From the explanatory power of accounting information perspective, in the extant literature, value relevance has been measured by examining the statistical relations between financial statements information and stock market returns or book value of equity. However, a large portion of the current value relevance literature involves using and developing theory based on Feltham and Ohlson (1995) model. Ohlson (1995) and Feltham and Ohlson (1995) developed the Feltham-Ohlson model, which has been commonly used in value relevance studies in many countries. This model, which is adopted for the current study, uses per share market value as dependent and present earnings and total book value of equity as independent, with added interaction terms.

4.3.4.1.2 Market environments and earnings value relevance

Bartov *et al.* (2001) compared whether earnings or cash flows value relevance is different across different countries, including: the US, the UK, Canada, Germany and Japan. By regressing returns on earnings and cash flow metrics, they found that earnings in Anglo-Saxon countries have greater explanatory power for stock returns than cash flows. Conversely, they discovered that earnings in non-Anglo-Saxon countries do not have superior explanatory power for the equity market than cash flows. They explained that capital in Anglo-Saxon countries is traditionally raised on the public equity market and earnings are under stronger equity market incentives, whereas in non-Anglo-Saxon countries, it is raised from private sources, thus reported earnings are less influenced by financial market incentives.

Similar to the study of Bartov *et al.* (2001), Arce and Mora (2002) investigated the differences in accounting practices between earnings and book value, and the stock market value of the firm for eight European countries (Belgium, France, Germany, Italy, The Netherlands, Switzerland, Spain and the UK) from 1990-98, with 22,436 non-financial firm-year observations. They further divided the countries into two groups: the investor-orientated common-law countries versus the creditor-orientated code-law countries. With the price level valuation model, they estimated the incremental value relevance and

compared the explanatory power, examined by the Vuong test and found that earnings are more relevant than book value in investor-orientated countries, whilst book value is more relevant than earnings in creditor-orientated ones. However, both earnings and book value information have incremental explanatory power to explain market prices, except for the cases of Germany and Spain. They concluded that accounting practices are affected by different accounting rules and different institutional factors. Hence, the use of a common set of standards could mitigate the differences caused by the accounting rules, but not those down to institutional and cultural factors.

Both of the above studies came to a similar conclusion, that earnings are more relevant in common law countries with investor-orientated capital markets than in code law ones with creditor-orientated capital markets, based on the European and US capital market data. In contrast, Charitou *et al.* (2000) elicited that earnings and cash flows are value relevant in Japan at much the same level as in the US market. For their study, they examined the explanatory power of earnings and cash flows on stocks returns by using data from the Japanese stock market for the period 1984-93, with 6,662 firm-year observations. The Japanese financial market is heavily based on creditor orientation rather than an investor one.

The following studies involved examining accounting information quality in terms of value relevance in the Chinese economy. Haw *et al.* (1999) investigated earnings value relevance in China by examining the information content of accounting earnings measured under the old Chinese GAAP based on A-shares during 1994-1997. They first evaluated the association between one year adjusted stock returns and the change of accounting earnings as a long-window of 12-month period. Then, they tested the association between a three-day adjusted market rate of return and the change of accounting earnings as a short-window. They adopted the random-walk model to proxy market expected returns before the earnings announcement since there were no financial analysts following the Chinese market at the early stage. They found that adjusted stock returns under a short- or long-window are significantly associated with a change of earnings and suggested that earnings provide useful information to investors for decision usefulness in China. They further elicited that the coefficients for the change of earnings variable are higher for Chinese listed firms than those

in more mature markets and thus concluded that reported earnings carry more useful information in China than in a mature market.

Chen and Wang (2004) investigated the value relevance of operating earnings and below-the-line items in the Chinese financial market. They found that below-the-line items are overused to fulfil the income-increasing purpose and frequently account for a large proportion of listed firms' net income. They tested data covering the period 1997-2000, with only A-share companies of 2,202 firm-year observations and adopted both a return and price model. They found both operating income and below-the-line items are value relevant; however, the former is more persistent and has significantly larger power in predicting future earnings than the latter, even though below-the-line items also persist into the future value. Moreover, the earnings component (including a nonoperation earnings component from below-the-line items) is impounded in stock prices as long as it is persistent.

The findings by Chen and Wang (2004) contradict those of Burgstahler *et al.* (2002), who elicited that stock prices do not fully impound for either speical items or a recurring component of earnings. Chen and Wang (2004) argued that the different findings could be attributed to the speical Chinese institutional environment. Under China's unique institutional environment, the majority shareholders of listed firms are SOEs. Chinese investors place s larger valuation weight on below-the-line items due to those listed SOEs being able to improve their bottom line earnings through these items when needed. Moreover, it is easy and convenient for state-owned unlisted parent firms to arrange nonoperating transactions to boost their listed firms' earnings through below-the-line items.

Chen *et al.* (2001) were the first to investigate whether the A-share market in China is value relevant by comparing it with the B-share market, finding that accounting information is value relevant in China's domestic market. Sami and Zhou (2004) further investigated whether there was a difference in the earnings value relevance under the old Chinese GAAP for A-share firms and IFRS for B-share firms. They adopted a price model drawn from the studies of Burgstahler and Dichev (1997) and Barth *et al.* (1998) and test data during 1994 to 2000 with 401 A-share and 401 B-share firm-year observations. They elicited that the accounting information in the B-share market under IFRS was more value relevant than in the A-share market under the old Chinese GAAP. Similar to Sami and Zhou (2004), Liu and Liu

(2007) also investigated the difference of value relevance of accounting information in China's different stock segments, by bringing H-share firms into their study. They found that accounting information is value relevant in the different stock market segments, being more value relevant in the B- and H-share markets than in A-share.

The review of related literature with regards to the accounting regime in China will be discussed in the future section 4.4, when the focus is on the transition of the accounting regime from the old Chinese GAAP to IFRS adoption, which is conceptually different from the value relevance study of accounting information.

Apart from the legal and market system, the country's disclosure quality also has an impact on the earnings value relevance. Kang and Hoong Pang (2005) investigated whether disclosure quality has an association with the value-relevance of accounting measures. They found accounting measures are more value relevant in developed economies than those of emerging ones.

4.3.4.1.3 Firm fundamentals and earnings value relevance

In an earlier subsection, accounting changes and country capital market environment effects were explored. This section reviews the literature with regards to the firm fundamentals as a determinant of earnings value relevance.

Some early studies showed that earnings response coefficients (ERCs) are positively related to earnings persistence. Collins and Kothari (1989) suggested that ERCs are a function of riskless interest rates, the riskiness growth and persistence of earnings. They used the discount dividends valuation model and find ERCs are positively related with firm growth and earnings persistence, which is similar with the findings of Kormendi and Lipe (1987). Hayn (1995) explained that the reason for ERCs being positively related with persistent earnings is because losses are not expected to perpetuate and hence, they are less informative than profits about the firm's future earnings. To study further the relation between losses and REC, Li (2011) tested the loss of firms' future earnings based on the model developed from Joos and Plesko (2005) and elicited that investors underestimate losses and expect losses to reverse more quickly than they actually do. Dechow *et al.* (2010) argued that the use of earnings persistence as a firm characteristic associated with fundamental performance to

investigate the earnings response in the financial market only provides indirect evidence, and that the accuracy of earnings persistence quality is not directly considered.

Some researchers have studied the implications of firm fundamentals on value relevance more directly. Ballas and Hevas (2005) investigated how income, accruals and book value of equity are perceived by the stock market in four European countries: France, Germany, the Netherlands and the UK). The total number of firm-year observations was 5,957 during 1995 to 2003 across seven industries. They adopted the price model to examine the association between the market value of the firms and accounting measures in the different countries and industries, finding that industry differences have stronger implications on the value relevance of earnings and book value of equity than country differences. Martinez (2003) examined the value relevance of accounting information, including firm size, debt leverage and business life cycle. The author used data from the French stock market of 918 firm-years observations during 1994-2001 and adopted the quadratic model by incorporating non-linear information between accounting information and firm-specific attributes. For this study, it was found that the relevance of earnings is conditional on size, debt level and life cycle of the firm. Moreover, it emerged that a change of earnings reveals more information when the firm is large with a low leverage level of debt.

4.3.4.1.4 Accounting methods and earnings value relevance

Some studies have involved examining the relation between earnings measured under alternative accounting methods and earnings value relevance. Collins and Salatka (1993) investigated whether earnings response coefficients are influenced by firms' accounting methods for foreign currency translation of gains and losses, following a Statement of Financial Accounting Standards (SFAS) N0. 52. They selected 30 firms with the highest variance of foreign currency adjustments from the Value Line during 1977 to 1981. They held that the changes in the translation methods and the removal of certain exchange adjustment gains and losses from the income statement in SFAS No. 52 have made reported earnings more informative.

Loudder and Behn (1995) examined whether the mandatory changes in income determination rules influence accounting information value relevance. The income

determination rules in their study referred to the switch of the research and development (R&D) accounting method as a result of the introduction of the Statement of Financial Accounting Standards (SFAS) No. 2. They compared the earnings usefulness after the change to SFAS No. 2, which mandated firms to switch from capitalising to the expensing R&D accounting method. They selected firms that had R&D outlays over at least one percent of sales revenue pre SFAS No. 2 and then, matched those firms with a control group of expensing firms based on size, industry, and relative magnitude of R&D outlay. They found that capitalising firms' R&D activities has significantly higher earnings usefulness than for expensing ones.

Altamuro *et al.* (2005) examined the effects of the SEC's Staff Accounting Bulletin No. 101 adoption on earnings management and informativeness regarding accelerated revenue recognition. They deployed a difference-in-difference approach using a sample of firms that accelerated revenue recognition prior to SAB No. 101 adoption and a matched set of firms that are unaffected by the adoption. They found that firms affected by SAB No. 101 adoption had greater earnings informativeness in the pre-adoption period. They concluded that accelerated revenue recognition practices targeted by SAB No.101 led to less informative earnings since unearned revenues also provide value-relevance information.

Hanlon *et al.* (2008) investigated whether the tax-induced changes in financial reporting behaviour have impacts on earnings value relevance, using the 94 firms identified by Guenther *et al.* (1997). Those firms were only deploying the cash method of accounting for tax purposes prior to TRA 86 and they compared those firms post TRA 86, which required them to switch to the accruals for tax purposes. They found that firms that converted to an accrual-based accounting method for tax purposes had a lower earnings response coefficient.

To summarise, among the four earnings qualities, value relevance analysis has been most widely studied in prior research. The most influential approach for value relevance analysis has been explained and presented by Ohlson (1995). However, the debate on the usefulness of accounting information to explain firm value remains unresolved. The following subsection focuses on the various value relevance models and their limitations.

4.3.4.2 Estimation models of value relevance

As financial statements fundalmentally serve a stock market investment purpose, researchers have long been investigating whether accounting data are value relevant in stock markets (Kothari, 2001). This subsection reviews the valuation models employed by researchers in terms of earnings value relevance studies.

4.3.4.2.1 Price and return models

In earnings value relevance research, many scholars have used a price and/or a return model for their study since Kothari and Zimmerman (1995). The price model indicates whether the accounting number is value relevant with respect to its association with firm value, while the return model tests information about whether an accounting amount is reflected in changes in value over the return period (Barth *et al.*, 2001). Often, empirical value relevance studies have credited Ohlson (1995) (details in 4.3.4.2.4) for how the price model is orientated. Collins *et al.* (1997) noted that the price model of Ohlson (1995) simply involved taking out the discounting earnings term from the original model.

Kothari and Zimmerman (1995) pointed out that the use of both models to permit more definitive inferences has become a common practice in the literature (Francis and Schipper, 1999; Eccher and Healy, 2000; Haw *et al.*, 1999; Chen *et al.*, 2001; Chen and Wang, 2004) to examine the earnings response coefficient (ERC).

Price model: $$P_t = \alpha + \beta E_t + \varepsilon_t$$

Return Model: $$P_t/P_{t-1} = \alpha + \beta \, E_t/P_{t-1} + \varepsilon_t$$

where, P_t is the ex-dividend share price, E_t is reported earnings P_{t-1} is the ex-dividend share price at the previous period and β is the estimation for ERC.

To yield a stationary series, Kothari and Zimmerman (1995) also provided the differenced-price model to overcome the econometric problems in using the price model:

$$\Delta P_t = \alpha + \beta \Delta E_t + \varepsilon_t$$

Beaver (2002) suggested that when the research design is for estimating what accounting measures are reflected in firm value, the price model will be more appropriate. Whilst when estimating the change in firm value over a specific time period, the return model will be more appropriate and time is an important element when using this model. Both the price and return models are employed to estimate share mispricing during the change of accounting regimes by comparing the explanatory power of earnings on stock price or returns between alternative accounting methods. Further, expanding on the study of Kothari and Zimmerman (1995), research papers also include other variables as regressors, such as book value of equity and special items, into the models (Holthausen and Watts, 2001; Martinez, 2003; Chen and Wang, 2004).

4.3.4.2.2 Dividend-discounting model

The aformentioned price and return valuation models are derived from the dividend-discounting model, which is attributed to Williams (1938) (Kothari, 2001). In addition to the price and return models, the earnings capitalisation model and the residual income valuation model are also both prouducts of the dividend-discounting model.

$$P_t = \sum_{k=1}^{\infty} E_t[D_{t+k}] \Big/ \prod_{j=1}^{k} (1 + r_{t+j})$$

where, P_t is share price at t, $E_t[D_{t+k}]$ is the market's expected dividends of period t+k and r_{t+j} is the risk-adjusted discount rate in period t+j.

The above equation illustrates how the basic theory of the dividend-discounting model is that the market value of the firm is the present value of expected future dividend discounted at a risk adjusted expected return rate. Gordon (1962) simplified the dividend-discounting model by assuming that market value is based on a discount rate (r) that is constant through time and dividends are growing at a constant growth rate (g) in perpetuity, r<g, Then, the model is simplified as follows:

$$P_t = E_t(D_{t+1})/(r - g)$$

Building on the Gordon's (1962) growth model, Kaplan and Ruback (1995) applied the expected difference between opearating cash flow and cash investment as the denominator in the model.

4.3.4.2.3 Earnings capitalisation

Miller and Modigliani (1961) argued that market value depends on the expected profitability and return of investment, whilst dividend policy does not affect a firm's market value. Fama and Miller (1972) reformed the simplified dividend-discounting model in terms of the forecasted value of future earnings and future invesments, rather than dividends and their model is known as the earnings capitalisation model. They argued that the growth rate itself does not increase present market value unless the return on future investment exceeds the discount rate, so:

$$P_t = {}^{X_{t+1}}/_{r}$$

where, X_{t+1} is expected earnings for the next period.

Fama and Miller (1972) referred the above valuation model as earnings capitalisation based on the assets that the firm currently holds and exlained that share price will only be higher than ${}^{X_{t+1}}/_{r}$, if the firm invests in projects and the return rate on these is above normal discount rate of return. Kothari (2001) criticised this, arguing that the earnings capitalisation model overlooks the equity return and growth through issusing new shares, but not reinvestments.

4.3.4.2.4 Residual income valuation model

The residual income valuation model (Feltham and Ohlson, 1995; Ohlson, 1995) is another transformation of the dividend-discounting model. It defines prices as the sum of current book value of equity and the discounted present value of expected future residual earnings (abnormal earnings). Moreover, it expresses firm value directly in terms of current and future accounting numbers, book values and earnings (Lee, 1999; Kothari, 2001), as follows:

$$P_t = BV_t + \sum_{k=1}^{\infty} E_t[X_{t+k} - rBV_{t+k-1}]\,/(1+r)^K$$

where, BV_t is book value at year t, $E_t[X_{t+k} - rBV_{t+k-1}]$ is expected abnormal earnings, X is the earnings for period t and r is the risk-adjusted discount rate.

Bernard (1995, noted in Kothari 2001) contended that the residual income model is an unbiased of accounting method , as it does not affect the model's implementation. He further explained that when a firm employs aggressive accounting, both current book value and current earnings will be high. However, the forcasted earnings will be lower and the normal earnings higher than were it otherwise and hence, the under estimated future abnormal earnings will offset the consequences of the aggressive accounting choice that is increasing current earnings. Kothari (2001) criticised this, arguing that the choice of different accounting methods on earnings has other consequences. Firstly, because none of the market valuation models offer any guidance or predictions about the firm's accounting methods. Secoundly, market analysts consider accounting choice in future earnings forcasts. Finally, if future abnormal earnings are viewed as economic rents and that firms use different accounting treatments to pursue different purposes, then the choice of accounting methods will become important.

The model simplified as the price model combined with the return model has been the most utilised in earnings value relevance research since Kothari and Zimmerman (1995) work. Both models have been discussed in an earlier subsection. The earnings valuation models attempt to investigate the relevance of accounting earnings information and the valuation method is particularly useful for the investigation of accounting changes.

4.3.4.3 Issues of earnings value relevance study

It appears that earnings value relevance analysis has been widely used by researchers as a proxy for earnings quality to investigate a change in the accounting system. After the review on the existing literature with regards to the value relevance studies, some conclusions can be made.

Firstly, scholars have adopted ERC as a proxy for earnings quality to capture intentional earnings management, but this may result in a false inference. Altamuro *et al.* (2005) found that earnings under a more aggressive accounting policy are associated with a higher ERC, which indicates that this accounting choice matters in the sense of increasing

earnings value relevance; however, it reduces earnings reliability. In contrast, Barth *et al.* (2001) suggested that value relevance analysis is a joint test between earnings relevance and reliability. It is a useful method to distinguish the impact of accounting changes as a whole in terms of accounting information quality, because all the valuation models have been silent on accounting choice. Hence, ERC as a proxy can explain economic consequences by comparing it and the explanatory power of R^2 under different accounting standards and reporting methods. Meanwhile, Dechow *et al.* (2010) argued that because the ERC captures the overall earnings quality and does not distinguish whether the change of the overall earnings quality is the contribution of a firm's fundamental performance or the accounting system, then, the earnings value relevance measure is a noisy measure for earnings quality under different accounting polity, because it embeds the effects of other determinants of this quality.

Secondly, there are the issues of the utilisation of the price and return models in the study of earnings value relevance and their limitations. The models are rather practical and understandable in terms of proxies for the estimation. As aforementioned, suggested by Beaver (2002), the price model is better suited for estimating what accounting measures are reflected in firm value, whereas time is an important element when using the return model and hence, it is suitable for a specific time period. Nevertheless, both the price and return models have been employed to estimate share mispricing during the change of accounting regimes by comparing the explanatory power of earnings on stock price or returns between alternative accounting methods. Whilst most studies have typically involved using linear regression to measure ERCs, Martinez (2003) and Dechow *et al.* (2010) pointed out the possibility of using non-linear regression for this purpose.

Other than the models generated from the dividend-discounting model, prior research has also involved using the Voung test to compare explanatory power. Barth *et al.* (2008) adopted Cramer's methodology to investigate the association between market value and accounting information by revising the calculation of the explanatory power. These different methodologies have provided support for the earnings value relevance inference. Furthermore, both the price and return models have been modified and applied in many empirical studies (Barth *et al.*, 2008; Lee *et al.*, 2013) adding different variables, e.g.

accounting policy, dividend policy and non-financial information. Since some value relevance researchers have investigated the different ERCs across alternative accounting standards, the models can be straightforwardly modified by allowing the research design to add dummy variables or running the regression twice. The modified regressions can provide more insightful information about the value relevance analysis.

In conclusion, the study of value relevance of earnings information has extensively caught the attention of accounting academics. Even though there are limitations in both estimation models in distinguishing accounting content, their ways of measuring the book value of equity and earnings to back up the investigation of the changes under different accounting policy, are still widely accepted in value relevance studies as facilitating the user's decision usefulness.

4.4 Earnings quality, IFRS adoption and SSSR

This section presents a summary from the existing research regarding earnings quality and IFRS adoption. Prior research, widely exploring the influence of IFRS adoption as one of the determinants on earnings quality in the EU and US markets, suggests that, abstracting from institutional factors, the introduction of high quality accounting standards should lead to better reported earnings quality. Christensen *et al.* (2013), in their study, pointed out that due to many countries having adopted IFRS reporting around the same time, it is difficult to isolate the effects of this reporting from other confounding institutional changes and/or economics shocks that happened during the same time period. They used EU adoption as an example and suggested that improved earnings quality after IFRS adoption could be explained by the starting of the Financial Services Action Plan (FSAP) in 1999 to improve financial market regulation. They further opined that why regulatory changes and IFRS adoption occurred concurrently is possibly due to the institutional changes being explicitly tied to IFRS adoption. In contrast, China's institutional change of SSSR in the capital market happened just before IFRS adoption and this change was not associated with enhancing regulatory or legal system enforcement, but may have encouraged earnings management incentives in China's capital market. Hence, the outcome of IFRS adoption in China could be opposite to that regarding EU countries' adoption. The following subsections review the literature on earnings quality and IFRS adoption in advanced economies as well as earnings quality, IFRS adoption and SSSR in China.

4.4.1 Earnings quality and IFRS adoption

De George *et al.* (2016) reviewed the literature on the effects of IFRS adoption on reporting quality, capital market, corporate decision making, stewardship and governance, debt contracting, and auditing. Under the section on IFRS and financial reporting quality, they reviewed the impact of both voluntary and mandatory adoption on reporting quality, asserting that voluntary IFRS adoption leads to improved financial reporting quality. There is mixed evidence relating to the effects of mandatory IFRS adoption on reporting quality.

Ahmed *et al.* (2013) investigated whether IFRS adoption lowers income smoothing, decreases earnings aggressiveness and/or decreases earnings management to meet or beat

targets. They compared the reporting quality of IFRS adopters to a matched sample of non-adopters, and found that the former experienced greater income smoothing, greater earnings aggressiveness, and a more delayed losses recognition. Ball *et al.* (2003) elicited that adoption of high quality accounting standards improves the value relevance of earnings reports, whilst Clarkson *et al.* (2011) asserted that IFRS adoption enhances comparability of accounting information in Europe and Australia. Horton *et al.* (2013) found that both mandatory and voluntary IFRS adoption firms are associated with less forecast errors and concluded that IFRS adoption increases both information quality and accounting comparability. An online survey across European countries showed that 63% of investors believe that IFRS has improved the quality of consolidated financial statements against 24%, who think the opposite (ICAEW, 2007).

Following the mixed findings of the impact from mandatory IFRS adoption on earnings quality, Brüggemann *et al.* (2013) study distinguished between intended and unintended consequences of mandatory IFRS adoption. They defined economic consequences to be intended (unintended), if they can (cannot) be reconciled with the IAS regulation's stated objective, which is to improve earnings reporting quality. They concluded that the intended consequences generally fail to result in an increase in the comparability or transparency of financial statements. However, there is rich evidence regarding the positive effects on capital markets at the macroeconomic level. The findings suggest that the previous literature has failed to find evidence of mandatory IFRS adoption improving accounting-based earnings quality, but there is almost unanimous evidence of it improving market-based reporting quality.

In other studies (Nobes and Parker, 2008; Nobes, 2011; Alali and Cao, 2010), it has been argued that, since IFRS are principle-based, their application and interpretation are inconsistent, and that enforceability is an issue. Due to the differences of local politics, culture, legal environments, and economic developing stages, many jurisdictions have adopted only some version of the standards, rather taking on full IFRS compliance. So, there is concern as to the comparability and reliability of financial statements prepared under different countries' 'IFRS-converged' standards.

Ball (2001) was sceptical regarding the view that simply mandating new accounting standards for public financial reporting would improve earnings quality, for the adoption should be accompanied by wholesale revision of the infrastructure that determines the financial reporting incentives of managers and auditors. Fama (1970) and Ball (2001) pointed out that the development of economically efficient public corporations and public securities markets are both crucial to the efficiency of the financial reporting system. Ball (2001) further argued that the quality of financial reporting is determined endogenously by the incentives that managers and auditors encounter. Hence, an effective system of private litigation does more to improve actual practice than that exogenously imposed by government.

4.4.1.1 IFRS adoption and earnings management

The evidence as to whether or not IFRS adoption reduces earnings management is mixed. Barth *et al.* (2008) considered 24 jurisdictions over the period 1994-2003, and found that firms that had adopted IFRS had a higher variance of changes in net income, higher correlation between net incomes and cash flows, higher correlation between accruals and cash flows, lower frequency of small positive net income and higher frequency of large losses, which together indicate a lower level of earnings management. Zéghal *et al.* (2011) concluded that the mandatory adoption of IAS/IFRS was associated with a reduction in the earnings management amongst 353 French listed companies over the period 2003-2006. Iatridis (2012) elicited that IFRS adoption has led to a higher number of UK firms using hedging rather than managing earnings. Moreover, the author posited that more effective corporate governance and stricter accounting disclosure requirements restrain earnings-manipulative managerial behaviours. Dimitropoulos *et al.* (2013) found evidence that the implementation of IFRS in Greece is associated with reduced earnings management, more timely loss recognition and greater value relevance of accounting figures.

Other empirical studies have suggested that the quality of financial information is affected not only by the use of IFRS versus the local GAAP, but also, by institutional factors. In these works, it is argued that whether or not IFRS adoption reduces earnings management depends upon factors such as legal enforcement, market transparency, audit efficiency and investor protection. Landsman *et al.* (2012) compared the information content of earnings announcements from 16 IFRS-adopted jurisdictions and 11 IFRS- non-adopted, finding that

IFRS adoption reduces reporting lag, increases analyst following and increases foreign investment. They elicited further that strength of legal enforcement was the main underlying factor as regards the effectiveness of mandatory IFRS adoption. Shelton *et al.* (2011) found that better legal enforcement is associated with less earnings manipulation and smaller restatement amounts. Houqe *et al.* (2012) discovered that IFRS adoption reduces earnings management in countries with strong investor protection, whilst Marra *et al.* (2011) concluded that board independence and audit committees played an important and effective role in reducing earnings management after IFRS adoption in Italy.

In contrast, Jeanjean and Stolowy (2008) found that IFRS adoption did not reduce earnings management in either the UK or Australia, and was associated with an increase in earnings management in France. They concluded that management incentives and national institutional factors play a more important role in framing financial reporting characteristics than do accounting standards. This is consistent with the earlier work of Ball *et al.* (2003), who elicited that managers' incentives appeared to dominate accounting standards as a determinant of accounting quality in four East Asian countries. Watrin and Ullmann (2012) reported that IFRS may have led to more homogenous earnings quality in Germany, but under it reporting quality on average decreased.

4.4.1.2 IFRS adoption and earnings persistence

There is little literature upon the effects of IFRS adoption on earnings persistence, and none in respect of the Chinese market since 2007. Atwood *et al.* (2011) examined how earnings persistence and the association between current accounting earnings and future cash flows differ for firms reporting under IFRS versus various domestic accounting standards regimes across 33 countries over the period 2002-2008. They found that positive earnings are similarly persistent under IFRS and other accounting standards regimes, but losses reported under IFRS are less persistent than those reported under the US GAAP. Further, earnings reported under the US GAAP are more closely associated with future cash flows than are those reported under IFRS.

4.4.1.3 IFRS adoption and timeliness

More timeliness, being more timely recognition of gains and losses, implies that accounting information is of better quality in that it is more up-to-date and relevant. Similar to the foregoing, there is scant literature regarding the effects of IFRS adoption on timely loss recognition, and none in respect of China. Barth *et al.* (2008) found that firms that have adopted IFRS recognise losses in a timelier fashion than do non-adopters and have more timely loss recognition. In contrast, however, Paananen and Lin (2009) discovered a reduction in the timeline of loss recognition following mandatory IFRS adoption in Germany. Moreover, both Ahmed *et al.* (2013), considering twenty countries over the period 2002-2007, and Chen *et al.* (2010b), for fifteen EU states over the period 2000-2007, found a significant increase in income smoothing and a reduction in the timeliness of loss recognition following the mandatory adoption of IFRS.

4.4.1.4 IFRS adoption and value relevance

Holthausen and Watts (2001) criticised the theories of accounting and standards setting underlying value relevance studies for not being specific and failing to identify the most relevant parameters.

Barth *et al.* (2008) and Clarkson *et al.* (2011) contended that the value relevance of aggregate book value and earnings is the natural place to look for the impact of IFRS adoption on earnings quality and that examining earnings value relevance is an approach for testing the criteria of relevance and reliability in accounting information reported under IFRS.

There is quite a breadth of literature regarding the effects of IFRS adoption on the value relevance of earnings. Barth *et al.* (2008) tested the impact of voluntarily adopting IFRS on earnings value relevance amongst 327 firms over the period 1994-2003. They found that firms applying IFRS produce accounting figures that are more value-relevant that those produced by firms applying their local GAAP. Similarly, Bartov *et al.* (2005) elicited an increase in the value relevance of reported earnings when firms switched to IFRS from the German GAAP. Christensen *et al.* (2007), considering the mandatory adoption of IFRS in the UK and voluntary adoption of IFRS in Germany, suggested that IFRS adoption has an effect on firms' cost of capital, which depends on firm-specific characteristics as much as the jurisdictional legal

framework. Clarkson *et al.* (2011) examined 3,488 firms in fourteen EU countries and Australia, finding that IFRS adoption has a greater impact on earnings relevance in code law countries as opposed to common law ones.

4.4.2 Earnings quality, IFRS adoption and SSSR in China

In China, there were both accounting and financial market reforms proposed and implemented by end of 2006. Whilst both these reforms had impacts on market incentives and reporting quality. However, whilst the previous literature on China with regards to earnings quality investigation has considered whether or not the change of accounting information quality is either from IFRS adoption or SSSR, there have been no studies on the confounding impact of both reforms on earnings quality.

4.4.2.1 Earnings quality and IFRS adoption in China

There have been a few studies about the relationship between earnings management and IFRS convergence in China. The first, Wang and Campbell (2012), considered IFRS adoption and governance variables amongst 1,329 listed Chinese companies over the period 1998-2009 and it was concluded that there was no evidence to suggest that IFRS implementation deters earnings management at any level of state ownership. Critically, in comparison with the previous study, this research will not restrict itself to A-share-only listed firms and will consider a longer period after the first adoption of IFRS-converged CAS. Zhang *et al.* (2013) investigated how accounting standards and insiders' incentives affect earnings management in China. They found that IFRS adoption in China actually increases earnings management, but the reform to non-tradable shares reduces it. These results are, however, open to question insofar as the testing was based on insiders' incentives as regards non-tradable shares – for which, theoretically, there should be no incentive to increase share value through earnings management.

There have been a few studies that involved investigating the association between value relevance and IFRS convergence in China since 2007. Liu *et al.* (2011) suggested that the accounting quality of Chinese listed companies has improved since the adoption of IFRS-converged CAS in 2007, but they only considered data one year either side of the adoption. Peng *et al.* (2008) examined the compliance, consistency, and comparability of 79 Chinese

listed companies' annual reports and found that compliance with IFRS was significantly lower than that with the old Chinese GAAP. Lee *et al.* (2013) elicited that the effect upon value relevance of earnings after the adoption of IFRS-converged CAS is more pronounced for those firms receiving a lower government subsidy.

However, there has been no research investigating the association between earnings persistence and timeliness and IFRS adoption. Moreover, researchers have ignored the confounding factor of SSSR, which was started in 2005. With a limited number of listed firms being non-SOEs and a large amount of having finished the reform by the end of 2006, it is predicted here that SSSR also impacted on earnings quality.

4.4.2.2 Earnings quality and SSSR

The aim of China's SSSR was to transfer non-tradable shares into tradable ones, thus encouraging SOE management to be sensitive to the share price in the stock market as well as enhancing its management and market efficiency. The SSSR in China has had some impact on the SOEs and firms holding non-tradable shares in terms of corporate governance and accounting information quality.

Hou *et al.* (2015b) examined whether in the context of SSSR, firms manage earnings to meet performance targets. Their data included 157 firms that offered performance commitments during the reform to make the transfer from non-tradable to tradable shares possible. They controlled for a further 1,079 listed firms that were not making any commitment regarding non-tradable reform. The sample period covered from 2005 to 2009. Given their focus was on investigating the 157 firms that offered commitment to SSSR, they did not mention the possible effects of IFRS adoption from 2007 to 2009. They found the firms with weaker financial performance had stronger incentives to make an accounting-based performance commitment to reduce the initial cost of obtaining the liquidity right for controlling shareholders.

Liu and Tian (2012) investigated whether the SSSR has had impact on controlling shareholders' leverage decisions. The data covered the period from 2004 to 2010 from CSMAR and they excluded SOEs with the state as the controlling shareholder, i.e. ST firms. They elicited that firms with excess control rights were less engaged in excess leverage after

SSSR and the market reaction to the announcement of related party transactions was more positive, with tunnelling activities to expropriate the interests of minority shareholders being reduced.

Hou *et al.* (2012) examined whether SSSR has improved SOEs' share price informativeness by improving corporate transparency. They employed the data over the period 2001-08 and adopted a firm-specific return variation as a proxy for share price informativeness. They found improved share price informativeness among firms that were more sensitive to the impact of the reform. Those were firms that had a higher proportion of state or restricted shares. Their interest lay in the effect of IFRS adoption in China in 2007, and so they cut their sample before the first quarter of 2008 to enable them to conclude that the findings were not due to this adoption. However, the problem is that the IFRS adoption was mandated from 1st January 2007, so the sample should have been curtailed before March 2007 rather than 2008 so as to exclude the time period in which mandatory IFRS could affect the share price movements. Nevertheless, if they had done so, their data would have needed to exclude the period while the SSSR was still ongoing.

A study by Liao *et al.* (2014) examined the privatisation effect of SSSR on SOEs' fundamental performance. They included 1,032 firms, of which, 633 were SOEs, during 2005-07 and used Fama and French (1993) three factor model to estimate the stock returns. They found that the output, profit, and employment increased after SSSR implementation, especially for SOEs; however, the corporate governance and operating efficiency remained unchanged. They suggested that the improved performance of SOEs was due to the boosted stock market incentives from government agents that operate or controlled SOEs. Moreover, it was argued that pre-existing non-tradable shareholders benefited from increasing market values of state-owned shares. If so, the government and the public investors would have become better aligned after SSSR.

In terms of the impact of SSSR on earnings quality, no empirical evidence shows that it has an influence on accruals quality, earnings persistence or timeliness, with the exception being value relevance. As with the studies reviewed in the previous subsection that ignored SSSR from 2005 to 2007, the literature covered in this one neglected the possible impact of IFRS on share price informativeness.

4.5 Earnings quality determinants

Earnings quality is an important accounting issue for accounting practitioners, investors and academics. A large body of academic research has examined the causes and consequences of earnings quality (Penman and Zhang, 2002; McNichols, 2002; Schipper and Vincent, 2003; DeFond, 2010; Watrin and Ullmann, 2012; Dechow *et al.*, 2010; Capalbo *et al.*, 2014; Dechow *et al.*, 2012). The aim of this section is to provide a review of earnings quality determinants. In particular, this section discusses the relationship between earnings quality and corporate governance, on the one hand and the relationship between earnings quality and other firm and institutional characteristics, on the other. In accordance with Dechow *et al.'s* (2010) perspective, this section annotates six main factors that influence earnings quality, these being: (1) financial reporting practices, (2) firm characteristics, (3) goverance and controls, (4) auditors, (5) equity market incentives, and (6) external institutional factors.

4.5.1 Financial reporting practices

Dechow *et al.* (2010) highlighted three features of finanical reporting practices that researchers have predicted as affecting earnings quality, namely: the flexibility of accounting methods, other finanical reporting practices, including finanical statement classification and interim reporting as well as principles versus rules based accounting standards.

Early studies provided some evidence on the relation between the flexibility of accounting methods and earnings quality. Barefield and Comiskey (1971) found that the use of straight-line depreciation, in general produces smoother earnings than does an accelerated depreciation method. However, the latter, in general, produces a higher earnings growth rate than a straight-line deprececiation method, further suggesting that the choice of depreciation method can affect earnings quality. Beidleman (1973) argued that firms select accounting methods that provide them with increased discretion to influence reported earnings. Both Barefield and Comiskey's (1971) and Beidleman's (1973) research designs were based on when the accounting method was non-mandatory, so different earnings reporting would have happened depending on the method used (Moses, 1987). In a mandatory reporting regime, there is no-cross-sectional variation to examine. Later studies regarding accounting methods and earnings quality examined specific accounting methods in particular settings to allow

them to overcome the design issues, with the accounting methods being mandatory (DHARAN, 1987; Lev and Sougiannis, 1996; Sivakumar and Waymire, 2003; Altamuro *et al.*, 2005).

However, the aformentioned studies not only faced research desgin issues regarding whether the accounting methods were mandatory, but also, in relation to the assumption about management's opportunisitic behaviour. The view that accounting method choice leads to lower earnings quality, because managers make opportunisitc choices rather than choices that improve earnings informativeness, does not have much support (Dechow *et al.*, 2010). There have been a small number of studies on the association between earnings quality and other finanical reporting practices, like finanical statement classification and interim reporting. McVay (2006) and Fan *et al.* (2010) exmined the classfication of "core" earnings and special items within income statements. They found that managers opportunistically shift expenses from core expenses (cost of sales and administrative expenses) to special items to overstate core earnings without changing bottom-line earnings to meet the analyst forecast, thereby avoiding market panelties. There is contrasting directional evidence relating to interim reporting. Kerstein and Rai (2007) adopted the "kink" in the distribution of earnings approach and documented how this kink is strongest for the fiscal year end in comparision with the that at interim quarters. Conversely, Brown and Pinello (2007) suggested that firms manage earnings to avoid reporting loss at interim quarters rather than at fiscal year end.

Last but not the least, the third feature of financial reporting that can be a determinant of earnings quality relates to the adoption of principles or rule-based accounting standards. Researchers have been interested in the impact of principle-based versus rule-based standards on earnings quality in accounting studies for the last decade; however, the evidence is mixed. Barth *et al.* (2008) considered 24 jurisdictions over the period 1994-2003, and elicited that firms that have adopted IFRS have higher variance of changes in net income, higher correlation between net incomes and cash flows, higher correlation between accruals and cash flows, lower frequency of small positive net income, higher frequency of large losses and greater value relevance, which together indicate improved earnings quality after adopting principle-based accounting standards. In contrast, Jeanjean and Stolowy (2008) and

Watrin and Ullmann (2012) found that principle-based standards cannot alleviate management incentives and do not improve earnings quality.

Dechow *et al.* (2010) argued that International Financial Reporting Standards as principle-based standards have the potential advantage of removing allowable alternative accounting treatments for a single transaction in favour of a single principle, which requires accounting measures that can better reflect a firm's underlying economic performance, thus increasing earnings quality. However, a potential disadvantage is that principle-based standards constrain a manager's use of discretion allowed within the standards to provide relevant information. In some studies (Nobes and Parker, 2008; Nobes, 2011; Alali and Cao, 2010), it has been argued that, since IFRS are principle-based, their application and interpretation are inconsistent. Moreover, enforceability is an issue when adopting them, because under such a system other institutional factors and individual firm characteristics are also involved.

4.5.2 Firm characteristics

Previous studies have found evidence that firm operating characteristics, like performance, debt, growth and size, are associated with the various proxies for earnings quality (Collins *et al.*, 1987; Lev, 1983; Dechow *et al.*, 1994). In several, the effect of firm profitability performance on earnings quality has been investigated and some has reported that poorly performing firms have higher incentives to engage in earnings management (DeFond and Park, 1997; Doyle *et al.*, 2007b; Doyle *et al.*, 2007a; Balsam *et al.*, 1995; Keating and Zimmerman, 1999). On the other hand, DeAngelo *et al.* (1994) suggested that firms with financial difficulties have limited accounting choices to manage earnings to inflate income.

Debt and constraints around the use and acquisition of debt financing has been found to encourage earnings management incentives to avoid default probability of a debt covenant and to improve a firm's bargaining power during debt negotiation. Watts and Zimmerman (1986) suggested that higher leverage firms are more likely to boost earnings or manipulate the financial statements through income-increasing accruals and other income-increasing accounting choices (Sweeney, 1994; DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002), which could reduce earnings quality. However, DeAngelo *et al.* (1994) found little difference

between accruals for firms with and without binding covenants. Dechow *et al.* (2010) contended that managers making accounting choices to avoid covenant violation may not necessarily imply a lower earnings quality.

Other researchers have investigated the role of firm growth in earnings quality. In terms of sales growth or net operating asset growth, it appears that high growth firms have higher measurement error in earnings, higher management incentives and lower earnings persistence (Nissim and Penman, 2001; Richardson *et al.*, 2005; McVay, 2006). On the other hand, Lee *et al.* (2006) did not find any significant association between growth and earnings management.

Firm size also has been suggested as a determinant of earnings quality; however, the evidence is mixed regarding this. Early studies predicted that larger firms, in general, would engage in income-decreasing accounting choice in response to greater political or regulatory obligations (Jensen and Meckling, 1976; Watts and Zimmerman, 1986; Moses, 1987) and thus, they would have lower earnings quality, which means that firm size would be negatively associated with earnings quality. On the contrary, recent studies found that firm size is positively associated with earnings quality, because small firms are more likely to have internal control deficiencies and are more likely to correct previously reported earnings (Doyle *et al.*, 2007b; Doyle *et al.*, 2007a; Ge and McVay, 2005).

The aforementioned studies have shown that firm characteristics can act as a determinant of earnings quality and that different firm characteristics (firm performance, size, debt, and growth) are, in general, associated with accounting method choice so as to influence earnings quality. Hence, earnings quality research must not only control for the opportunistic accounting choice, but also, for the fundamental differences in firm characteristics to make sure that any change in earnings quality is explained primarily by the independent variables and not influenced by firm performance, debt, growth and size. This will be covered further in the discussion on the control variables in the empirical models.

4.5.3 Governance and controls

According to Jensen and Meckling (1976), internal controls include monitoring mechanisms chosen according to the principles and bonding mechanisms selected by the agent. Monitoring and bonding are afforded cost in the principle-agent relationship under the modern corporate structure. This subsection discusses the governance and internal control mechanisms including the board of directors, internal control procedures as well as managerial ownership and compensation.

4.5.3.1 Board of directors

The board of directors (BOD) is a tool that could be used by shareholders to monitor top managers (Fama and Jensen, 1983a), yet boards are not always capable of exercising this monitoring role effectively. Boards, in general, consist of two different types of directors: executive and non-executive. Executive directors are the subordinates of the Chief Executive Officer (CEO), being responsible for daily management issues and business strategies. However, they are not in a strong position to monitor or discipline the CEO, especially in large-scale firms (Daily and Dalton, 1993) and hence, there is lack of monitoring of effectiveness issues given the board of directors structure. Prior research has highlighted that the most important board issue is board independence in the company structure (Cadbury, 1992; Weir and Laing, 2000). Regarding which, Larcker *et al.* (2007) examined the association between 14 dimensions of corporate governance and earnings quality, as measured by discretionary accruals and restatement and found mixed evidence on board independence and earnings quality.

Beasley (1996) found that larger proportions of outside members on the board of directors significantly reduces the likelihood of accounting fraud and improves the reported earnings quality. Both Klein (2002) and Xie *et al.* (2003) studies elicited that the number of independent members on a BOD is negatively related with the abnormal accruals and that BOD independence is associated with less earnings management. Consequently, the more independent the board structure from the CEO, the more effective the monitoring of the corporate financial and accounting process (Klein, 2002; Johnson *et al.*, 1993). However, other studies have shown there is nonsignificant association between independent directors and

earnings management (Haniffa *et al.*, 2006; Osma and Noguer, 2007). Agrawal and Chadha (2005) found that earnings quality is not related to the independence of boards, but rather, to the financial expertise of independent directors, who are valuable in providing oversight of a firm's financial reporting practices.

Following the introduction of independent directors in China, researchers have been investigating whether this has led to improved accounting quality. The evidence of the association between independent directors and earnings quality is mixed. Some studies have found that the higher the proportion of independent directors the better the earnings quality (Firth *et al.*, 2007; Lo *et al.*, 2010). However, Chen and Cheng (2007) suggested that board independence has yet to be effective in improving accounting quality in China. In sum, the effectiveness of independent directors in different countries is largely unclear and has received scant attention from researchers.

4.5.3.2 Internal control procedures

The evidence consistently suggests that stronger internal control procedures are associated with less earnings management (Doyle *et al.*, 2007a; Doyle *et al.*, 2007b; Dechow *et al.*, 2010). Doyle *et al.* (2007b) examined the relationship between accruals quality and internal control, eliciting that weakness in the internal control environment is associated with higher levels of earnings management, measured in terms of accruals quality. The weak internal controls and lower accruals quality is driven by weakness in disclosures which are relevant to overall company level controls. In general, the conclusion can be drawn that the monitoring nature of internal controls is to ensure the informativeness of earnings so that the financial statements can reflect a real picture of the firm's performance, i.e. internal control can affect earnings quality positively.

4.5.3.3 Managerial ownership and compensation

The evidence on managerial ownership structure and earnings quality is even more mixed. Since the agency problem introduced by Berle and Means (1932), finance and accounting researchers have focused on the agency cost from the professional managers' opportunistic incentives perspective to test earnings quality.

Managerial ownership has been traditionally viewed as providing direct economic incentives for managers to engage in active monitoring and aligning ownership and controlling through stock ownership (Bhagat *et al.*, 1999). Warfield *et al.* (1995) found a positive association between managerial ownership and earnings explanatory power for returns and negative association with the magnitude of accrual adjustments. However, if the managerial ownership is greater, then the manager, as the controlling shareholder may achieve private benefits at the expense of minority shareholders' interest (Smith, 1976; Dhaliwal *et al.*, 1982) and there will be less conservatism (Lafond and Roychowdhury, 2008). Based on the ownership structure of the firms, prior research has involved comparing owner controlled versus manager-controlled firms and has elicited that managerial ownership influences the choice of accounting method. Moreover, manager-owner firms are more engaged with earnings smoothing and an income-increasing accounting method, thus being associated with lower earnings quality.

The amount of studies that have investigated the relationship between the characteristics of managerial compensation and earnings management is vast, covering bonus plans (Healy, 1985; Guidry *et al.*, 1999; Holthausen *et al.*, 1995; Skinner, 1993; Hagerman and Zmijewski, 1979), earning-based compensation (Guidry *et al.*, 1999), and equity-based compensations (Bergstresser and Philippon, 2006; Burns and Kedia, 2006; Armstrong *et al.*, 2010), executive stock options and insider trading. The evidence of whether managerial compensation is associated with a lower earnings quality is mixed. However, it is not feasible to summarise and compare the results of those studies as each identifies a specific form of compensation related incentives to a specific earnings management objective with a specific tool of earnings management (Dechow *et al.*, 2010).

4.5.4 Auditors

It is expected that auditors and audit practices are a determining factor in earnings quality, because of their role in mitigating intentional and unintentional misreporting in the financial statements. The objective of an audit of financial statements prepared within a framework of recognised accounting politics is to enable an auditor to express an opinion on such financial statements, for the auditor's opinion helps establish the credibility of the financial statements (Abbott *et al.*, 2000) . The ability of the auditor to limit misstatements is dependent on his or

her ability to detect them and to adjust for or report these (DeAngelo, 1981). In prior research, it was hypothesised that the ability of the auditor to detect errors relies on the effect and the effectiveness of the auditor. The auditor's incentives to report or adjust errors are driven by high standards of ethics, independence and a reputation for detecting errors or fraud in the financial reports (Nelson *et al.*, 2002).

The auditing quality is unobservable as with earnings quality, hence in previous studies different proxies have been used to measure auditing effectiveness and incentives. Caramanis and Lennox (2008) adopted the most direct proxies for auditing effectiveness and found a negative association between audit effectiveness and the level of discretionary accruals. Moreover, some evidence has shown that the familiarity of the auditor with the industry in which the client operates is also negatively associated with earnings management and that an industry specialist auditor provides higher quality in the audit process (Balsam *et al.*, 2003; Solomon *et al.*, 1999).

Other studies, using auditor tenure as a proxy for audit effectiveness, elicited contradicting evidence. Johnson *et al.* (2002) examined whether the length of the relationship between a company and an audit firm is associated with financial-reporting quality, finding that medium and short audit-firm tenures are associated with lower quality of financial reports. On the other hand, Chen *et al.* (2008a) elicited that long audit-firm tenure is associated with lower earnings quality, whilst short audit-firm tenure is associated with better earnings quality.

Evidence from prior research also suggests there is relation between audit firm size and earnings quality. Big audit firms are predicted to provide better audit quality, thus enhancing reporting quality and the informativeness of financial statements (DeFond and Subramanyam, 1998; Francis *et al.*, 1999; Becker *et al.*, 1998). However, studies have shown mixed evidence between audit fees and earnings quality; the relationship depends on the type of fees, sample of firms, and the accrual measurement.

Finally, In China, auditing firms and auditors are also subject to the political influence, so the evidence from western literature may not apply to audit effectiveness there. Auditors in China were closely affiliated with their local governments until their separation between in

1998. After this, local auditors had specialised knowledge of local government units and thus, local state-owned firms controlled by province, city, and country governments tended to hire small local auditors (Wang *et al.*, 2008). The same local government serves as controlling shareholders of a large portion of these audit firms' clients and local audit firms' partners, which thus reducing the auditors' independence and hence, may not able to offer effective audit opinion (Reynolds and Francis, 2000). DeFond *et al.* (1999) suggested the affiliation between accounting firms and the government was a major threat to auditor independence in China and find that government affiliated auditing firms audited about 70% of listed companies. Moreover, the authors pointed out how auditing firms were protected from litigation risks, because the ultimate liability was borne by the sponsoring government agencies, which increased the likelihood of accounting scandals. As regard to the big international auditing firms, the entrance of foreign auditing firms into China has been a slow procedure. They have only been allowed to provide certain services for those international firms and limited consultancy services to Chinese clients. Since 1992, the big international auditing firms have been allowed to enter the domestic accounting and audit serviced market, but only by forming joint ventures with domestic Chinese accounting firms. The evidence between auditing effectiveness and earnings quality in China is also mixed.

4.5.5 Capital market incentives

In addition to the managerial incentives from opportunistic behaviour, the capital market incentives also have an influence on firms' accounting choices, which are the potential determinant of earnings quality. Capital market incentives arise when a firm needs to raise capital from the financial market to meet a particular target.

Several studies have examined the use of accounting choices to boost earnings prior to an IPO or rights issues. Teoh *et al.* (1998) found evidence that firms in the IPO year have unusually high accruals and experience poor stock return performance in the three years thereafter. Aharony *et al.* (2000) investigated the earnings pattern pre and post firms' IPO in China and found that the sample firms used accrual-based earnings management to boost earnings prior to the IPO and that earnings in the post-IPO period declined significantly. Inflating earnings in the pre-IPO period is further motivated by the prospect of tunnelling opportunities in the post-IPO period to exploit economic resources from minority

shareholders for the benefit of the parent company (Aharony *et al.*, 2010). Both findings are consistent with China's unique accounting earnings based IPO and rights issue requirements and dominant position of controlling shareholders in corporate governance, which create strong capital market incentives for managing earnings upwards to meet the IPO requirements. Dietrich *et al.* (2000) examined whether raising capital in debt markets provides incentives for earnings management and found that managers adopt accounting methods that will yield high reported earnings in order to raise new debt.

The above reviewed literature is based on raising capital from financial market incentives. A number of studies have provided evidence of earnings management to meet or beat a particular earnings benchmark: zero or analyst benchmark to obtain stable or high stock returns. Bartov *et al.* (2002) discovered that firms that meet or beat the current analysts' earnings benchmark experience a higher return than those that do not. However, the studies (Bartov *et al.*, 2002; Yu, 2008; Roychowdhury, 2006; Koh *et al.*, 2007) do not provide evidence on how firms choose among different accounting methods to influence reported earnings. In China, zero earnings thresholds are used as delisting criteria on the stock market; firms reporting two consecutive annual losses are subject to stock suspension and delisting. Jiang and Wang (2008) contended that the earning-based delisting requirement induces listed firms in China to engage in earnings increase management to avoid this.

4.5.6 Institutional factors

In additional to all the above mentioned determinants of earnings quality, there are other external factors, like capital market requirement, political influence in the business circle and the regulation enforcement level that also have impacts on the accounting choice and earnings quality. Dechow *et al.* (2010) suggested that when earnings quality measures relating to incentives are provided by external factors, equity market incentives receive little support as a determinant of accounting choice. So, whether the capital market determinants are accurate depends on whether the factors outside of the financial market can constrain the incentives for managing earnings.

Taking China as an example, for a firm to be qualified for IPO, the net profits have to be over 30 million RMB for last three consecutive years; return on assets has to be over 6%

for last three years to meet the rights issue requirement; and firms with two years loss reports will face share suspension or delisting. Therefore, in China, managers have greater incentive to adopt income-increasing accruals to meet regulatory requirements (Haw *et al.*, 2005). Chinese political influence also has penetrated into the financial market, especially for the firms that are still under government control. For those SOE firms, accounting choice and earnings quality are further determined by the political incentives, rather than only financial market ones (Piotroski *et al.*, 2015). Furthermore, the regional factor has an impact on reported earnings quality.

4.6 The consequences of earnings quality

Previous studies have highlighted several consequences for earnings quality and this section discusses those that are relevant to the context of this research. Hence, this section reviews literature providing evidence for the following consequences of earnings quality: investment efficiency, market valuations and the cost of capital.

4.6.1 Investment efficiency

Biddle and Hilary (2006) found that higher earnings quality enhances investment efficiency through reducing information asymmetry between managers and outside investors. McNichols and Stubben (2008) further discovered that firms manipulating their earnings to target external investors can also influence internal investment decisions. However, they did not explain why lower earnings quality would be associated with poor internal investment decisions. In their paper, they suggested that the positive association between earnings quality and investment efficiency is based on the condition that capital is largely provided by arm's length transactions in the financial market. Whereas in the countries where capital in the financial market is supplied mainly by creditors like banks and other financial institutions, the association between earnings quality and investment efficiency is not strong. As in China the creditors are the main capital suppliers rather than the financial market, then the consequence of higher earnings quality may not be associated with higher investment efficiency.

4.6.2 Market valuations

Prior research has shown that firms manage reported earnings to avoid earnings decreases and losses, thereby meeting analysts' forecasts (Burgstahler and Dichev, 1997; Burgstahler and Eames, 2003; Dichev and Tang, 2009). They also do so to meet or beat analysts' expectations for the rewards of higher valuation (Kasznik and McNichols, 2002), even if there is evidence of earnings management to achieve the results (Myers *et al.*, 2007). Some studies have provided evidence that managing earnings through discretionary loss reserves is not rewarded with higher firm valuation (Beaver and McNichols, 1998) and when firms subsequently fail to achieve a target, they are more likely to lose the extra valuation (Skinner and Sloan, 2002). Dechow *et al.* (2010) explained that the market rewards some types of

earnings management, but not others and there is greater market mispricing of less transparent earnings techniques.

4.6.3 Cost of capital

Previous studies have documented that lower earnings quality is associated with higher cost of equity (Dechow *et al.*, 1996; Hribar and Jenkins, 2004; Francis *et al.*, 2004). Francis *et al.* (2004) examined the relationship between the cost of equity and seven attributes of earnings: accrual quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism. The first four attributes are considered as accounting-based earnings quality proxies, the last three are seen as market-based earnings ones. They found a positive association between information quality and cost of equity, that accounting-based attributes have more pronounced cost of equity effects than do market-based ones and accrual quality has the largest effects on the cost of equity. Jayaraman (2008) elicited that when discretionary accounting choices lead to smoother or more volatile earnings than cash flows, the financial market information suffers greater asymmetry.

Similar evidence also exists for the debt capital market, that lower earnings quality is associated with a higher cost of debt. Francis *et al.* (2005) suggested that accrual quality has the most effect on both the cost of equity and cost of debt, with firms with poor accruals quality incurring higher interest expense in the debt market. Bhojraj and Swaminathan (2009) found evidence that corporate bonds with high operating accruals underperform corporate bonds with low operating accruals. They also elicited that bond investors misprice high and low accrual firms in a similar way to equity investors.

4.7 Conclusion

This chapter has presented a general understanding of earnings quality. First, the definitions of earnings quality were discussed. This was followed by the dimensions of earnings quality, different models and proxies of earnings quality as well as their strengths and weaknesses being discussed. Subsequently, the possible impacts of China's accounting and market reforms on earnings quality were covered. Then, the different determinants of earnings quality were presented accompanied with evidence from prior research on the importance of each of these determinants with regards to earnings quality. The final section identified the different consequences of earnings quality in the light of capital market effectiveness and the cost of capital.

From the literature review, firstly, it appears that the researchers have been searching for a general theory to explain earnings quality. However, there seems have been no concrete approach to date, to explain the differences in managerial behaviour and no concrete manifestation of earnings quality. Secondly, accruals quality would seem to be at the centre of the earnings quality investigation: firstly, regarding managerial incentives detection; and secondly, in respect of accruals persistence to determine earnings quality. However, the studies have shown no interest in controlling the estimation errors in the discretionary accruals models. In addition, the value relevance concept has been widely employed in the earnings quality literature in terms of the change in accounting standards and similarly to accruals models, its models also have limitations. Other than limited accruals quality and value relevance analysis, it is rare to find existing literature with regards to earnings persistence and timeliness in emerging markets. Finally, accounting standards are not the only parameter influencing earnings quality, for there are other determinants like institutional and firm specific factors that have an impact on accounting information quality. Moreover, the research conducted on emerging markets has largely failed at controlling for institutional differences between countries when investigating earnings quality under a change in accounting standards.

Chapter 5: Accrual quality

5.1 Introduction

This chapter investigates the first dimension of earnings quality: accruals quality. As discussed earlier in this thesis, in the literature, accrual quality investigation is at the centre of many managerial incentives and earnings quality studies. A lower level of discretionary accruals indicates the higher accrual quality and thus, higher reported earnings quality.

As aforementioned, the Chinese stock market underwent two regulatory reforms around 2007: the split share structure reform (SSSR), implemented over the period 2005-2008, and mandatory IFRS-converged CAS adoption from 1st January 2007. This study is aimed at examining whether accounting information quality was enhanced after China's adoption of IFRS-converged CAS in 2007, taking into consideration the possible impact of SSSR on earnings manipulation and performance. Even though IFRS is considered to be an improved set of more advanced accounting standards according to some literature (Hung and Subramanyam, 2007; Bartov *et al.*, 2000), the benefit to Chinese accounting information quality from IFRS convergence is by no means certain, for several reasons. Firstly, the IFRS-converged CAS does not represent a full adoption of IFRS. Secondly, IFRS were developed out of a mindset of advanced economies with common law legal systems – and the standards are, therefore, principle-based. Moreover, their application requires professional accountants to make sound judgements, especially regarding fair value measurement.

In comparison to the world's major developed economies, China is still an underdeveloped economy with a weak financial and legal system. Amongst its accounting and finance workers and firms over the period of this study, there was a lack of professional expertise to provide independent judgement on fair value estimation, and the financial markets lacked the liquidity and efficiency to give credible fair value indications. At this time, implementation of SSSR not only gave rise to stock market incentives to improve firms' performance/efficiency, but also, potentially boosted management incentives to manipulate earnings. SSSR emerged a couple of years ahead of China's IFRS convergence, with the objective of converting non-tradable shares to become tradable in the stock market, thus enhancing financial market liquidity and economic efficiency. Financial market incentives and

discipline of firms arrived only after completion of SSSR, once the non-tradeable shares had become tradeable. Based on boosted SSSR-related management incentives over the course of implementation of SSSR, and the relatively weak Chinese legal and economic systems around (only) partial IFRS convergence, it is predicted that accrual quality decreased over the focal period of this study. Accrual quality is estimated by both standard deviation (SD) of working capital accrual estimation errors, as suggested by Dechow and Dichev (2002), and also by the absolute value of discretionary accruals deduced from the modified Jones model (Dechow *et al.*, 1995).

Firstly, the Dechow and Dichev (2002) model is implemented by estimating the SD of accrual estimation errors, and it is found that the accrual quality of Chinese listed firms declined over the three testing sub-periods. The SDs do not change significantly between 2003-04 and 2005-06, with the advent of the first phase of implementation of SSSR; they significantly increase from 2005-06 to 2007-08, with transition to the second phase of SSSR alongside transition to the use of IFRS-converged CAS; and finally they increase again from 2007-08 to 2009-10 with completion SSSR in the post-IFRS-convergence phase. The findings suggest, therefore, that accrual quality significantly reduced over the last two sub-periods of the study. SSSR-related management incentives to manipulate earnings dominated any possible positive impact from IFRS convergence in China and led to significantly reduced earnings quality.

Second, the modified Jones model is adopted to test abnormal (discretionary) accruals quality. In a conventional application of the model, based on all discretionary accruals (DA) (whether income-increasing or -decreasing), the empirical evidence shows that the absolute value of DA does not change significantly between 2003-04 and 2005-06 in the first testing period, thus suggesting that the first phase of the SSSR implementation did not have a significant impact on accrual quality. The evidence from the last two testing periods shows that the absolute value of DA significantly reduced between 2005-06 and 2007-08 in the second testing period and between 2007-08 and 2009-10, which suggests that accrual quality improved after the SSSR negotiation and the adoption of IFRS-converged CAS, being apparently contra to the findings from the DD model. Given the nature of the incentives and hypotheses addressed in this thesis, however, a distinction between income-increasing and

income-decreasing accruals is vital. Hence, separate estimations are performed for positive DA and for the absolute negative value. The findings suggest that income-increasing accruals significantly reduced between 2003-04 to 2005-06 in the first testing period; income-increasing accruals significantly increased and income-deceasing accruals significantly reduced between 2005-06 to 2007-08 in the second testing period; income-increasing accruals significantly reduced in the final phase of SSSR implementation between 2007-08 to 2009-10.

The findings are consistent with the predictions in this thesis as regards SSSR-related management incentives, these being: (i) management of earnings downward during the first (negotiation) phase of SSSR in order to drive down the compensation payable to external, private shareholders; (ii) management of earnings upward to boost share prices in the second phase of SSSR, the lock in period, to maximise the receipts from share sales into the market once they became tradeable; and (iii) management of earnings downward soon after completion of SSSR, in order to re-acquire the shares at lower price than that at which they were sold, thus making a share trading profit whilst maintaining (regaining) ownership levels. It is concluded that the significant reduced absolute value of (all) DA in the second and final periods was driven by management incentives and fulfilled by increasing *income-increasing* accruals and reducing *income-decreasing* accruals in the second phase and reduced *income-increasing* accruals in the final phase. Contrary to the standard interpretation of abnormal accrual quality estimation in the previous literature, it is held here that accrual quality reduced through the SSSR implementation, despite IFRS convergence, even though the absolute value of DA decreased in the second and final testing period.

In confirmation of China's relatively underdeveloped legal and financial systems, and weak accounting/finance profession, control variables for use of 'Big 4' auditors and for difference corporate governance mechanisms are commonly insignificant: variables found to reduce earnings management activity in developed economies do not appear to be effective in the Chinese context.

This chapter begins with the research objective and research questions in section 5.2. Hypothesis development follows in section 5.3. The research method and data collection are

presented in section 5.4, whilst the results are provided in section 5.5. The chapter summary and conclusions are presented in section 5.6.

5.2 Research objective and questions

There have been a number of studies investigating the impact of IFRS adoption on accounting information quality in developed economies, of which a number have shown that IFRS adoption adds value to accounting information in developed institutional settings (Hung and Subramanyam, 2007; Bartov *et al.*, 2005; Jeanjean and Stolowy, 2008; Horton *et al.*, 2013). Studies for developing countries, however, are rather limited; and the evidence is not clear as to whether or not IFRS adoption benefits emerging economies. A paper by Ball *et al.* (2000) suggested that lower transparency of accounting information in the emerging markets, which is attributable to weak enforcement of accounting standards in these countries, could lead to lower reported earnings quality under IFRS.

In this chapter, the earnings quality is approached via accrual quality, which is consistent with a large number of prior studies (Defond and Park, 2001; Dechow and Dichev, 2002; Haw *et al.*, 2001; Francis *et al.*, 2005; McInnis and Collins, 2011; Badertscher *et al.*, 2012; Mouselli *et al.*, 2012; Doyle *et al.*, 2007b; Richardson *et al.*, 2005). Accrual quality in this study is investigated in terms of both discretionary accrual quality (Jones, 1991; Dechow *et al.*, 1995) and working capital accrual quality (Dechow and Dichev, 2002; McNichols, 2002; Francis *et al.*, 2005).

There have been only a limited number studies examining the impact of IFRS-converged CAS adoption on listed firms' accrual quality (Wang and Campbell, 2012; Zhang *et al.*, 2013). There are some that have investigated the impact of SSSR on the share price informativeness, but there is no empirical evidence as regards its impact on accrual quality. Liao *et al.* (2014) examined the influence of SSSR on SOEs' fundamental performance. They found that performance was improved due to the boosted stock market incentives from the government agents and management group who benefitted from the increasing of share values. There is no research, however, considering both the accounting and the market reforms, implemented around the same time, as being potentially intertwined in their

influence on accounting information quality as well as on managerial and market incentives/opportunities.

Estimating models for both discretionary accruals and for working capital accruals, the objective of this chapter, in particular, is to examine whether SSSR implementation and the adoption of IFRS-converged CAS in China had an impact upon accrual quality. To address the objective, the research questions of this chapter are:

1. Was there a change in working capital accruals quality, as assessed by the Dechow and Dichev (2002) model, through the phases of implementation of the non-tradable shares reform (SSSR); and in the transition from old Chinese GAAP to IFRS-converged CAS?
2. Also, was there a change in discretionary accruals quality, as assessed by the modified Jones model (Dechow *et al.*, 1995), through the phases of the non-tradable shares reform (SSSR); and in the transition from old Chinese GAAP to IFRS-converged CAS?

5.3 Hypothesis development

As China's IFRS convergence was not a full adoption of IFRS and given its emerging market characteristics, the outcome of implementation of IFRS-converged CAS is unclear. Around the same time, implementation of SSSR boosted management's earnings manipulation and stock market incentives. Hence, a joint effect on accrual quality is posited for those firms that were subject to SSSR.[44]

SSSR should have increased the stock market sensitivities of controlling shareholders since they could sell their shares at market price after the reform; stock performance and controlling shareholders' wealth were closely tied since they could trade the shares at market value (Liu and Tian, 2012). Hence, at the very least, financial market incentives became

[44] The vast majority of Chinese firms had non-tradable shares and were subject to SSSR. In the data set for this study, 11,760 firm-year observations were from firms subject to it, of which most completed SSSR and had previously non-tradeable shares actually tradeable by 1st January 2008. Only 120 observations are from firms not subject to SSSR, which are retained in the data set for completeness.

stronger and more adapted to serve the needs of the controlling shareholders in the post SSSR period.

In order to test the research questions of this chapter, the study period is separated into three overlapping sub-periods. Please Refer to Table 5.1, which is Table 1.1 reproduced below, for convenience.

Table 5.1: SSSR phases and related management incentive predictions

(Table 1.1 reproduced here for convenience)

<table>
<tr><th colspan="2">SSSR</th><th colspan="2">IFRS</th></tr>
<tr><td>2004 and before</td><td>Pre-SSSR implementation</td><td rowspan="2">2006 and before</td><td rowspan="2">Pre-IFRS period</td></tr>
<tr><td>2005-2006</td><td>SSSR phase 1: negotiation period. Managers had the incentive to drive down share price, so that the local SOE hierarchy minimised the compensation it was obliged to pay to external shareholders</td></tr>
<tr><td>2007-2008</td><td>SSSR phase 2: lock-in period: managers had incentives to drive up share prices, so that local SOE hierarchy received the maximum amount from sale of shares once the lock-in period ended</td><td rowspan="2">2007-2010</td><td rowspan="2">Post-IFRS-convergence: Possible influences: (i) EQ-increasing impact of IFRS in general, albeit not universal; (ii) EQ-decreasing under the impact of IFRS-convergence in China: weak legal enforcement, strong management incentives, lack of (minority) investors' protection, heavy government intervention, not a full adoption of IFRS</td></tr>
<tr><td>2009-2010</td><td>SSSR phase 3: post lock-in period and post-sale of SOE shares. Managers had the incentive to drive down share prices, so that the local SOE hierarchy could buy back shares at a lower price than that at which it sold them, thus creating a gain</td></tr>
</table>

As previously discussed in Chapters 1 and 3, the first phase of SSSR is pre-IFRS convergence in China – so estimations are free from the impact of IFRS adoption, thus highlighting the influence of the first phase of SSSR. The majority/controlling shareholders were holders of non-tradable shares and had to compensate to the (private) holders of tradable shares for the market effect of converting substantial numbers of non-tradeable shares into become tradeable. To limit/minimise the compensation payable, the agents/managers, who represented the controlling shareholders, had a strong incentive to manage earnings downwards. Hypothesis 5.1 is designed to investigate the association between SSSR and accrual quality in Chinese A-share listed firms with the advent of the first phase of SSSR. Accordingly, hypothesis 5.1, pertaining to the first sub-period this study, is as follows:

H5.1: In the first phase of SSSR, earnings quality as measured by accruals quality will be reduced.

To test the H5.1, this study separates accruals to income-increasing accruals and income-decreasing accruals. If earnings are managed downwards, there should be a net shift away from income-increasing accruals towards income-decreasing ones. Therefore, a shift away from income-increasing accruals to income-decreasing accruals would provide evidence of a management incentive to drive earnings downwards, and that those incentives were acted upon; and so of reduced earnings quality in the first phase of the SSSR implementation.

The second testing period / sub-period is from 2005 to 2008, which includes adoption of IFRS-converged CAS in 2007 and the transition from the negotiation phase to the lock-in phase of SSSR. As abovementioned, China's IFRS adoption was partial and, given the country's emerging market characteristics, it is difficult to predict whether earnings quality was enhanced by IFRS convergence. In addition to China's mandatory adoption of IFRS-converged CAS on 1st January 2007, after completion of the first phase of SSSR, the negotiation phase, SSSR moved into a lock-in period, i.e. previously non-tradable shares remained for a further 24 months. As discussed in Chapters 1 and 3, the second high-level hypothesis of this study concerns a desire among holders of non-tradable shares to be able to sell shares at higher price after the lock-in period, and the incentive for their agents/managers to manage earnings upwards during this time. Without fundamental economy improvements (legal, professional,

etc.), the move toward principle-based standards under IFRS-converged CAS adoption may not have mitigated against management's ability to manipulate earnings, indeed, this might even have made manipulation easier. In this chapter, it is argued that continuation into the lock-in phase of the SSSR, in spite of IFRS-convergence, resulted in lower accounting information quality as measured by accruals quality. Accordingly, Hypothesis 5.2 is as follows:

> *H5.2: In the second phase of SSSR, earnings quality as measured by accruals quality will be reduced.*

To test the H5.2, the same approach as used for H5.1 (above), with separation of accruals into income-increasing accruals and income-decreasing accruals. But here, the hypothesis is that earnings are managed upwards. If earnings are, indeed, managed upwards, there should be a net shift towards income-increasing accruals and away from income-decreasing ones. Therefore, a shift towards income-increasing accruals and away from income-decreasing accruals management would provide evidence of management incentives to drive earnings upwards, and that such incentives were acted upon. Further, any such evidence here would be of upwards earnings management and reduced earnings quality in the second phase of the SSSR implements despite (or perhaps even facilitated by) the transition to IFRS-converged CAS.

The final testing period is from 2007 to 2010, all of which was after China's IFRS convergence adoption, and during which the SSSR implementation moved from the lock-in phase to completion, with previously non-tradable becoming tradable from the beginning of 2009. Hence, changes in accrual quality in this testing period may be deduced to be primarily as a result of progress with SSSR implementation, rather than changes in accounting standards. Completion of SSSR was a milestone for Chinese stock market liberalisation, with the removal of the non-tradable share structure supporting transition towards a free market model. According to previous literature (Firth *et al.*, 2010; Hou *et al.*, 2012; Liao *et al.*, 2014; Yang *et al.*, 2015), however, the objective of SSSR was to make non-tradable shares tradable, but without giving up state control of SOEs. Having sold previously untradeable shares after the lock period (and sold them 'high' – see above), the third-high level hypothesis of this study concerns a desire by SOEs and majority/controlling shareholders to re-acquire these shares 'low', thus making share trading profits whilst maintaining (regaining) SOE control.

Consequently, after the initial sales of newly tradeable shares in early 2009, there is an incentive for firms' agents/managers to manage earnings downwards, with the foregoing discussion concerning the lack of efficacy of IFRS-converged CAS to mitigate earnings management still pertaining. Hypothesis 5.3 is stated as follows:

> *H5.3: In the third phase of SSSR, earnings quality as measured by accruals quality will be reduced.*

To test the H5.3, the same approach as used for H5.1 (above) is used. Here again, a shift away from income-increasing accruals to income-decreasing accruals would provide evidence of a management incentive to drive earnings downwards, and that those incentives were acted upon; and so of reduced earnings quality in the third phase of the SSSR implementation despite the transition to IFRS-converged CAS.

5.4 Research method

This section presents the empirical method. First, it discusses the measurement of accrual quality used to identify the impact of SSSR implementation and IFRS convergence on earnings quality. It is followed by explanation of the data collection and estimations.

5.4.1 Measures of accrual quality

This subsection focus on two accrual quality estimation models: the Dechow and Dichev (2002) model and the modified Jones Model (Jones, 1991; Dechow *et al.*, 1995). The models' limitations were discussed in Chapter 4, and so, are not reiterated here.

Firstly, the Dechow and Dichev (2002) Model (model 5.1) is adopted to test working capital accrual quality. It starts with the premise that the purpose/benefit of accruals is to adjust for cash flow timing problems. The authors argued that, in the absence of intentional earnings manipulation, accrual quality will be systematically related to firm and industry characteristics. Moreover, since both intentional and unintentional estimation errors imply lower quality accruals and earnings, it is unnecessary to separate discretionary and non-discretionary accruals. They took the residuals from firm-specific regressions of changes in working capital on previous, current and one-year-ahead cash flows from operations to represent accruals estimation errors. In addition, they used the standard deviation (SD) of

these residuals to indicate the quality of accruals and earnings – the higher the standard deviation signifying lower quality.

$$\frac{\Delta WC_{i,t}}{A_{i,t-1}} = \alpha_0 + \beta_1 \frac{CFO_{i,t-1}}{A_{i,t-1}} + \beta_2 \frac{CFO_{i,t}}{A_{i,t-1}} + \beta_3 \frac{CFO_{i,t+1}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (5.1)$$

where, ΔWC is the change in working capital accruals, being the change in current non-cash assets, ΔWCA, less the change in current liabilities, ΔCL. All other variables are as previously defined.

The higher the standard deviation of accrual estimation errors from Model (5.1), SD[ε], the lower the implied working capital accrual quality. The SD estimation is, as with |DA|, an unsigned accrual quality measure, which does not give indication of the direction of accruals management, but rather, focuses on the magnitude of working capital accrual changes. In the Dechow and Dichev (2002) model, accruals quality is measured by the extent to which working capital accruals map into operating cash flow realisations. Unlike the Modified Jones model, there is no separation between discretionary (intentional or manipulative) accrual changes and other changes. Nor is there the opportunity to separate the estimations as between income-increasing and income-decreasing accrual activity.

To estimate the accrual quality, the focus is then on the absolute value of discretionary accruals (DA), as measured by the difference between total accruals (TA) and non-discretionary accruals (NDA), scaled by total assets at the beginning of the year. Non-discretionary accruals capture adjustments that reflect fundamental financial performance, whilst discretionary accruals are regarded as capturing distortions (through application of the GAAP or otherwise) in earnings. Discretionary accruals were first modelled by Jones (1991), since when, such modelling, in its original and modified forms, has become a widely used empirical technique in earning quality assessment, but it has also been subject to criticism (see Chapter 4) (Dechow *et al.*, 2010).

Following previous studies (Dechow *et al.*, 1995; Bartov *et al.*, 2000), NDA is estimated by adopting a cross-sectional Modified Jones Model (model 5.2). The model is fitted to cross-sectional or time series data. In either case, the model has methodological limitations (Holland and Jackson, 2004; Young, 1999), because the estimated model may not perfectly

predict non-discretionary accruals, and thus, the deduced discretionary accruals suffer from measurement error. Dechow *et al.* (2010), however, suggested that the cross-sectional Modified Jones Model has greater explanatory power than the original Jones Model, since it reflects credit sales manipulations.

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_i \left(\frac{1}{A_{i,t-1}}\right) + \beta_{1,t} \left(\frac{\Delta REV_{i,t}}{A_{i,t-1}} - \frac{\Delta REC_{i,t}}{A_{i,t-1}}\right) + \beta_{2,t} \left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \qquad (5.2)$$

where, TA is as previously specified; A represents assets; ΔREV represents change in revenue; ΔREC represents change in receivables; PPE represents property, plant and equipment; and e is a stochastic error term. The subscripts relate to firm and time, respectively. The definitions of all variables used in this chapter are presented in Table 5.3.

There are two alternative approaches to calculating total accruals: the balance sheet and income statement approaches. Hribar and Collins (2002) criticised the balance sheet approach in that it might lead to changes in working capital accounts related to the non-operating events being mistaken as accruals. In this research, therefore, the income statement approach from Collins and Hribar (2000) is adopted:

$$TA_{i,t} = IO_{i,t} - CFO_{i,t} \qquad (5.3)$$

where, TA is as previously specified, IO represents operating income and CFO represents cash flow from operations.

Total accruals calculated from model (5.3), deflated by $A_{i,t-1}$, is used as the dependent variable in model (5.2); and the residuals from estimating (model 5.2) provide measurement of discretionary accruals as follows:

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left[\widehat{\frac{TA_{i,t}}{A_{i,t-1}}}\right]_{\text{Estimated from regression (5.1)}} \qquad (5.4)$$

where all variables are as previously defined.

Since this study is focused initially on the magnitude of DA, rather than direction, the following analysis employs the absolute value of estimated discretionary accruals (|DA|).

With this treatment, as is usual, both income-increasing and income-decreasing discretionary accruals lead to an increased |DA| - conventionally interpreted to mean a greater level of earnings management and hence, lower earnings quality. Subsequently, and most illuminating, income-increasing discretionary accruals, $|DA^{+}|$ and the absolute value of income-decreasing accruals, $|DA^{-}|$, are separated.

5.4.2 Research design

To test the hypotheses, the extent/variation in the two measures of accruals quality (|DA| and SD) around the implementation of IFRS-converged CAS and SSSR is investigated. Multivariate regressions are adopted with panel estimation to test the association between accrual quality and the IFRS and SSSR reforms.[45] Given the setting and objectives of this study, dummy variables are employed to represent phases through the accounting and market reforms, which includes a number of firm-and year-specific control variables designed to allow for firms' specific characters, institutional factors, corporate governance, and ownership structures. Model (5.5) is expressed as follows:

$$AccQua = \alpha_0 + \alpha_1 DUM + \sum_{k=2} \alpha_k Control_{k,i,t} + \varepsilon_{i,t} \qquad (5.5)$$

where, AccQua represents the accruals quality variable (either SD or |DA|); DUM represents, in turn, phase dummy variables SSSR1 (for model estimated from 2003-2006), IFRS_SSSR2 (for model estimated over the period 2005-2008) and SSSR3 (for model estimated for 2007-2010), which are as defined in Table 5.2, as discussed below.

In sum, in this chapter accrual quality is examined via estimating the working capital accrual quality through the accrual estimation errors model (Dechow and Dichev, 2002) as well as the absolute level of discretionary accruals using Dechow *et al.* (1995) modification of the Jones (1991) model. Both standard deviation of accrual estimation errors and absolute discretionary accruals are unsigned measures of accrual quality. The limitation of unsigned accrual quality measures is that they cannot reveal the direction of accrual management as

[45] The estimation of Model (5.5), like all model estimations in this study unless otherwise specified, was performed using a panel regression with fixed effects at the firm level. This was after appropriate prior Hausman and Breusch-Pagan tests for each model/estimation. All estimations in this thesis were performed using STATA version 13.0.

income-increasing or income-decreasing (Hribar and Craig Nichols, 2007). Hence the abnormal accruals are subsequently separated into income-increasing and income-decreasing accruals in order to test specifically accruals activity in relation to directional hypotheses concerning earnings management.

Increased SD and absolute level of discretionary accruals indicate decreased working accrual and discretionary accrual quality. Negative association between IFRS/SSSR adoption and absolute value of discretionary accruals indicates a reduced level of these accruals, which implies less accruals management after the reforms in China and thus, enhanced accrual quality. Likewise, with the SD from the accrual estimation errors, a negative correlation between it and IFRS/SSSR indicates that reforms decreased the estimation error in short term working capital accrual, thus implying increased accrual quality.

The hypothesis H5.1 predicts that |DA| and SD increased after the commencement of the first (negotiation) phase of the SSSR in 2005 - due to management incentives to manage earnings downwards and thus, there was lower accrual quality. In this regard, the association of SD and |DA| with the phase dummy SSSR1 in Model 5.5 is tested. Under hypothesis 5.2, it is predicted that the incentives created by transition to the second (lock-in) phase of SSSR dominated the possible positive impact of IFRS-convergence and led to a continued reduction in accrual quality. Accounting standards alone do not change the firms' fundamental financial condition and management incentives/activities. To test H5.2, the association of SD and |DA| is examined with the phase dummy IFRS_SSSR2 within Model 5.5. Given the parallel course of the accounting and market reforms, the IFRS_SSSR2 variable not only represents IFRS convergence, but also, the transition from the first (negotiation) to the second (lock-in) phase of SSSR.

Hypothesis H5.3 predicts that, post-IFRS-convergence, transition to phase 3 of the SSSR – the free trading of previously untradeable shares – there was a management incentive to manage earnings downwards again. Accordingly, the association of SD and |DA| with phase dummy SSSR3 in Model 5.5 is tested. The final testing period, 2007-2010 was free from (first order) the impact of the transition IFRS-converged CAS, which was adopted from 1st January 2007 onwards.

5.4.3 Control variables

In order to help to isolate/identify the impact of the accounting and financial market reforms on accrual quality, firm-specific and institutional factors, corporate governance, and ownership structure are controlled for. The control variables are as listed in Table 5.3 and as discussed next. The control variables selected from firm-specific financial characteristics are:

Table 5.2: Phase dummy variables employed

Estimation period	Model base case	Dummy intercept and interactions for
2003-2006	2003-2004 [SSSR1 = 0]	2005-2006 [SSSR1 = 1]
	Pre-SSSR	SSSR phase 1: negotiation of compensation
	Pre-IFRS convergence	Remains pre-IFRS convergence
2005-2008	2005-2006 [IFRS_SSSR2 = 0]	2007-2008 [IFRS_SSSR2 = 1]
	SSSR phase 1: negotiation of compensation	SSSR phase 2: lock-in period
	Pre-IFRS convergence	Post-IFRS convergence
2007-2010	2007-2008 [SSSR3 = 0]	2009-2010 [SSSR3 = 1]
	SSSR phase 2: lock-in period	SSSR phase 3: trading of previously untradeable shares
	Post-IFRS convergence	Remains post-IFRS convergence

operating cash flows scaled by total assets, CFO; the natural logarithm of total market value of equity, SIZE; financial leverage, LEV, being total liabilities scaled by total book value of equity; a dummy for current year profitability, PROFIT, being 1 for profit, 0 otherwise; credit ratio, CR, being total assets divided by total liabilities; and inventory to asset ratio, INV.

The control variables CR and INV measure firms' financial health in terms of liquidity and efficiency, respectively, with the estimated coefficient expected to be positive with CR and negative with INV – greater liquidity and efficiency suggest less incentive/need for accruals manipulation (Allen *et al.*, 2013). The inclusion of CFO is to control for the potential

correlation between discretionary accruals and operating cash flows, with a negative estimated coefficient expected (Dechow *et al.*, 1995; Kothari *et al.*, 2005; Myers *et al.*, 2003; Peasnell *et al.*, 2000; Carey and Simnett, 2006; Iatridis, 2012). SIZE controls for firm size effects, and the previous literature has found mixed evidence of the association between this and accrual quality (Dechow and Dichev, 2002; Chung *et al.*, 2002; Iatridis and Rouvolis, 2010). LEV is included because highly leveraged firms may have greater incentives for earnings management (Peasnell *et al.*, 2005; Carey and Simnett, 2006; DeFond and Park, 1997), and the estimated coefficient is expected to be positive, i.e. greater leverage is associated with lower accrual/earnings quality. PROFIT is a dummy variable as a loss indicator and examines the potential differences in discretionary accruals between loss and profit firms, with a negative sign being expected on the estimated coefficient (Burgstahler and Dichev, 1997).

The level of related party transactions is also controlled for. Prior studies in China (Wong and Jian, 2003; Dai and Chen, 2004; Jiang and Wang, 2008) have found that Chinese listed firms not only manage accruals to boost earnings and avoid losses, but also employ a number of other means. Firms engage widely in the manipulation of related party transactions, asset impairment, debt restructuring, or outright fraudulent activities in addition to manipulation of accruals. While accruals manipulation is often regarded as the main method of earnings management in the literature on western firms/economies, related party transactions, particularly in loss making firms, is an increasingly important issue in the Chinese stock market (Wong and Jian, 2003). Jian and Wong (2006) suggested that when management incentives to manipulate earnings are strong, mechanisms include: (i) related party transactions to manage non-operating earnings; (ii) related party sales to manage operating earnings; and (iii) accruals management. They concluded that managers are only more likely to use the accruals method to manage earnings when the non-operating earnings opportunity is less readily available. Non-operating income (NOI) is used as the indicator of related party transactions, which expected exhibit a positive relationship with accrual quality, and so a negative sign on the estimated coefficient.[46]

[46] A positive estimated coefficient in Model 5.5 implies a positive association between the variable and accruals manipulation, so a negative association between the variable and accrual (and earnings) quality and *vice-versa*.

In addition, ownership concentration, nature of controlling shareholders and top management group (including chief executive officers) have been found to affect discretionary accruals (Firth *et al.*, 2007; Fan *et al.*, 2007b; Roe, 2003; Fan *et al.*, 2007a). Firms with highly concentrated ownership have lower earnings quality, due to large shareholders' ability to influence firms' reporting policies for their own benefit, rather than trying to reflect the underlying economic status (Fan *et al.*, 2007b). For this study controls ownership concentration is controlled for (variable CONCEN, being the proportion of the firm owned by controlling shareholders), which is expected to be negatively related to accrual quality (Fama and Jensen, 1983b; Beuselinck and Manigart, 2007; Leuz and Oberholzer-Gee, 2006), and a positive estimated coefficient is expected in Model (5.5). It is noted that it is unclear whether the control rights of large shareholders were significantly changed after SSSR, since the sale and re-acquisition of previously untradeable shares is envisaged (see discussion above).

Jensen (1993) contended that board monitoring is more effective, if directors also hold company shares. If board leadership and the CEO position are vested in the same person, the board members will be in a difficult position to oversee managers' behaviour (Jensen and Meckling, 1979; Fama and Jensen, 1983b; Jensen, 1993). Warfield *et al.* (1995) found that higher managerial ownership decreases the incentive for earnings management motivated by self-interested purposes. In China, however, the selection of top managers and directors, especially in SOEs, is often influenced by the state and the managerial ownership is very low (Chung *et al.*, 2002). Managers are rewarded mainly through fixed salaries, according to their seniority, age and position. Moreover, share-based payments and bonuses have not been applied widely by listed firms. Managers' performance in Chinese listed firms is commonly evaluated based on total profits rather than on the companies' equity returns or the growth in earnings per share. In this study, the proportion of the firm owned by managers is controlled for through variable MOWN, and it is expected (based on findings in the west) that there will be a positive association with accrual quality, i.e. a negative estimated coefficient in Model (5.5).

Finally for controls, some studies have found that large audit firms (e.g. the 'Big 4') enhance the credibility of financial statements and have a direct influence on their quality (Francis *et al.*, 1999; Francis and Wang, 2008). Hence, audit firm selection is controlled for

and a higher accrual quality for firms who use the Big 4 auditors (KPMG, Deloitte, PwC and Ernst & Young) is anticipated. The dummy variable AUDIT, being 1 for firms with Big 4 auditors and 0, otherwise, is expected to have an estimated coefficient with a negative sign in Model (5.5).

The global financial crisis (GFC) of 2007, 2008 and beyond falls within the period of this study, however, this is not controlled. This for three reasons. First, albeit many (most) world economies suffered significantly in the GFC, China was largely unaffected (Morrison, 2009). Indeed, as shown in Figure 5.1, Chinese GDP growth continued at near 10% throughout the period, which is exceptional in comparison to the growth seen elsewhere in Asia Pacific (see Australia in Fig 5.1), the UK and the USA. Second, Chinese financial markets are strictly regulated and international capital flows are restricted, with only domestic investors being allowed to trade in the A share market. Hence, there is restricted scope for international contagion into China. Third, a methodological constraint: control for the GFC, conventionally in the literature, involves incorporation of a GFC time-dummy(s) into econometric models. As will be clear from the foregoing, time dummies are necessary to investigate the effects of the transitions set out in Table 5.2 and there is no scope for incorporation of a further GFC time dummy. Further, it is hypothesised that there was manipulation to increase earnings (and market prices) over the period 2007-08 – a period in which the heat of the GFC caused widespread price drops. Hence, significant results found in support of the study hypotheses over 2007-08 are *despite* the impact of the GFC, certainly not with its assistance and may, therefore, be viewed as strengthened by this consideration.

Figure 5.1: GDP growth rate: China, Australia, US and UK

Data source: World Bank

Finally, industry effects are not controlled for: as discussed earlier, appropriate pre-testing indicated panel estimation with fixed effects at the firm level. Given firm fixed effects, industry fixed effects have no place in the estimations.[47]

5.4.4 Sample separation

One of the unique features of Chinese corporate governance is state control over many firms, the SOEs. For this study, estimations over the whole population of Chinese listed firms' firm-years are made with separate estimations for SOEs and for Non-SOEs also being found. Following Jian and Wong (2006), firms are identified as SOEs, if (i) their ultimate controlling party is attested to be the state (since 2003, listed firms have been required to disclose their ultimate controlling parties in their annual financial reports); and/or (ii) the state controls directly or indirectly over 30% of total voting rights; and/or (iii) the state voting rights allow it to elect over 50% of the board directors. SOEs are less engaged with market incentives or

[47] The common error in the literature is to include industry fixed effects along with firm level fixed effects. These should only be considered if there are significant in-sample inter-industry transitions, which is not the case in the present study.

incentives to maximise large shareholders' wealth but more likely manage earnings to achieve certain political goals. Due to their unique position in the Chinese economy, they are financially supported by central or local government and politically exempt from related party transaction disclosure (Jian and Wong, 2006; Tong *et al.*, 2014; Wong and Jian, 2003; Lo *et al.*, 2010).

Another feature of the Chinese environment is the existence of special treatment (or ST) designation for firms that have suffered two consecutive loss-making years and are under threat of delisting (see Chapter 2). Separate estimations are made for Non-ST and ST firms to ascertain whether: the response of ST firms to the incentives created by SSSR implementation was less predictable that that of Non-ST firms.

5.4.5 Full list of variables with definitions and treatment of outliers

The definitions of all the variables used in this chapter are presented in Table 5.3., which includes summary information on the treatment of outliers and estimated sign expectations where pertinent. The treatment of outliers can be to: (i) keep and treat them like any data point; (ii) Winsorise outliers, assign them lesser weight, or otherwise modify outlier values to be closer to the other sample values; or (iii) drop the outliers. Winsorisation can avoid overvaluing/undervaluing outliers and maintain the estimation accuracy with the true population value (Ghosh and Vogt, 2012). Most of the continuous (non-dummy) independent variables required for the estimation of models (5.1), (5.4) and (5.5) (after deflation) were Winsorised up to the 1st and beyond the 99th percentile points, which was in order to eliminate extreme outliers and potential data errors. Such treatment is common in the accrual quality investigation literature.

Table 5.3: Definition of variables

Variable name	Definition	Treatment of outlier	Hypothesised sign
	Panel A: Accrual quality estimation variables		
$A_{i,t-1}$	Opening total assets in year *t*	Deflator	n/a
$\Delta REV_{i,t}$	Change in revenues from year *t-1* to *t*, scaled by opening total assets in year *t*	Winsorised up to the first percentile and beyond the 99th percentile	no prediction
$\Delta REC_{i,t}$	Change in net receivables from year *t-1* to *t,* scaled by opening total assets in year *t*	Winsorised up to the first percentile and beyond the 99th percentile	no prediction
PPE	Property, plant and equipment, scaled by opening total assets in year *t*	Winsorised up to the first percentile and beyond the 99th percentile	no prediction
TA	Total accruals, scaled by opening total assets in year *t*	Winsorised up to the first percentile and beyond the 99th percentile	n/a
IO	Net operating income, scaled by opening total assets in year *t*	Winsorised up to the first percentile and beyond the 99th percentile	Not applicable
CFO	Net operating cash flows deflated by opening total assets in year *t*	Winsorised up to the first percentile and beyond the 99th percentile	+ve
$\Delta WC_{i,t}$	Change in working capital from year *t-1* to *t*, scaled by opening total assets in year *t*	Winsorised up to the first percentile and beyond the 99th percentile	no prediction
	Panel B: Alternative dependent variables		
DA	Discretionary accruals. The cross-sectional Modified Jones Model is adopted for estimation	n/a	n/a
|DA|	The absolute value of discretionary accruals Unsigned DA	n/a	n/a
$\|DA^{+}\|$	Unsigned income-increasing DA	n/a	n/a
$\|DA^{-}\|$	Unsigned income-decreasing DA	n/a	n/a

SD	Working capital accrual quality. The standard deviation of saved residuals from the Dechow and Dichev (2002) model	n/a	n/a
	Panel C: Independent focal (phase dummy) variables		
SSSR1	A dummy variable that takes a value of 1, if after the announcement of SSSR in negotiation period from 2005 to 2006; takes a value of 0 before the announcement of 2005.	n/a	+ve
IFRS_SSSR2	A dummy variable that takes a value of 1 from 2007 to 2008; takes a value of 0 before 2007. This variable also represents SSSR from the negotiation period (2005-2006) to the lock-in period (2007-2008).	n/a	+ve
SSSR3	A dummy variable that takes a value of 1 after the non-tradable shares lock-in period from 2009 to 2010; takes a value of 0 when non-tradable shares remain in lock-in from 2007 to 2008	n/a	+ve
	Panel D: Independent control variables		
SIZE	The natural logarithm of total assets	Winsorised up to the first percentile and beyond the 99th percentile	no prediction
LEV	Total liabilities divided by total book value of equity	Winsorised up to the first percentile and beyond the 99th percentile	+ve
CR	Total assets divided by total liabilities	Winsorised up to the first percentile and beyond the 99th percentile	-ve
INV	Total inventory divided by total assets	Winsorised up to the first percentile and beyond the 99th percentile	-ve
NOI	Non-operating income divided by total assets	Winsorised up to the first percentile and beyond the 99th percentile	-ve
PROFIT	A dummy variable that takes a value of 1, if net profit is positive, otherwise 0	Not required	-ve

AUDIT	A dummy variable that takes a value of 1, if the firm uses the Big Four, otherwise 0	n/a	-ve
CONCEN	The proportion owned by controlling shareholders	n/a	+ve
MOWN	The proportion of the number of shares owned by the top managers	n/a	-ve

5.4.6 Data collection

The data cover all A-share firms listed on the SSE and the SZSE exchanges during the period 2003 to 2010 (inclusive). They have been downloaded from the Chinese Securities Market & Accounting Research (CSMAR) database and from firms' annual reports. CSMAR is designed and developed by GTA Information Technology. The database is one of the major providers of Chinese financial and accounting research data, covering the Chinese stock market as well as the financial statements and corporate governance of Chinese listed firms. The datasets within CSMAR used for the purposes of this chapter are: the Chinese Stock Market Financial Statements Database, the China Stock Market Split Share Structure Reform Database, the China Stock Special Treatment Research Database, the China Listed Firms' Corporate Governance Research Database, the China Listed Firm's Shareholder Research Database, and the China Stock Market Financial Database of Audit Opinions.

This study is focused on the A-share-only listed firms. As discussed in Chapter 2, firms with B-shares were required to produce their financial statement under both old CAS and IFRS prior China's IFRS convergence 2007, whereas for A-share-only firms there was a clear transition as from 1st January 2007. Hence, it is for the A-share firms that the impact of Chinese IFRS convergence would have been most pronounced and clear as regards the transition point. Further, the impact of SSSR implementation on accruals quality is investigated. Only A-share firms who owned non-tradable shares prior SSSR (mostly SOEs) were subject to SSSR.

The old Chinese GAAP, which here is compared with IFRS-converged CAS, was implemented from 2001, whilst a Chinese code of corporate governance (CCG) was promulgated in 2002. Further, the requirement for firms to disclose the controlling shareholders' names and proportions started from 2003 after the CCG. Hence, in order to avoid confounding effects of the introduction of the CCG on earnings quality, and to allow for ownership interest of controlling shareholders, the period of this study starts in 2003[48]. To

[48]2003 is not itself a sample year; rather observations and data items for 2003 are required as lagged variables relating to the first sample year for the accrual quality test models, 2004.

cover the transition IFRS converged CAS in 2007, the implementation of SSSR from 2005-2008, and to allow for two years beyond, the study period runs through to 2010.[49]

The data are organised according to firm-years, with an initial collected population of circa 15,000 firm-year observations. As regards data availability/continuity the following were excluded:

- Firm-years for firms with less than three firm-year observations (93 observations), since the estimation of working capital accrual quality requires at least three firm-year observations;
- Firm-years for 33 ST firms delisted from the Main Board and reduced to the Third Board before 2006 are also excluded; [50,51]
- Firm-years for firms that are from China's GEM Board (whose stock code starts with "300XXX"), being 1,273 observations. The GEM board was established in 2009, which is after the mandatory adoption of IFRS-converged CAS in 2007;
- Firm-years of firms from the SME Board (3,464 observations), since the majority of the SME Board firms were listed only after 2006, with only one such firm listed before IFRS convergence in 2007.

Given the aim of this chapter is comparing the change of accrual quality under a change in accounting standards and implementation of SSSR in China, and the desire for firm time-series spanning different phases of the reforms (and so, two of the exclusions set out above), there may be concerns about survivorship bias. This is common in this kind of study. In the Chinese context, the majority of the *population* survived over the sample period, with,

[49] With some required data items collected for 2011, as regards the forward variable in the DD model and, for Chapter 8, market returns to beyond the year end.
[50] See Appendix 5.2 for those firms delisted so.
[51] In China, the term "board" in this context refers to a segment of the stock exchange. The Main Board, similar to the UK's "Main market" is the principal market in which the shares of large companies, including SOEs, are traded and it holds the listings for the majority of firms in this study. The SME Board holds these listings for small and medium firms; and the GEM Board is for high technology stock. The Third Board lists predominantly ST firms, and has restricted trading – with a stock transfer agent system as its trading platform, via over-the-counter markets in local exchanges. The original Third Board was established in 2001 and includes mainly delisted firms from the Main Board, GEM Board and SME Board. The new Third Board was born in 2006 with an experimental scheme to bring in non-listed firms from Zhongguancun Science and Technology Park (China's "Silicon Valley") to the stock transfer agent system and in 2012, it became available for firms outside the park.

for example, the majority of ST firms surviving in the data set in their own right or via M&A activity with healthier firms.

After the exclusions discussed above, the final data size for this chapter is as set out in Table 5.4, with the number of firm-year observation split by SSSR phase, and by ST versus Non-ST firms and alternatively, by SOEs versus Non-SOEs. Note that ST versus Non-ST, and SOE versus Non-SOEs are two alternative ways of splitting the same sample or firm years. The distribution of the sample of firm-years by industry groups is showed in Table 5.5.

Table 5.4: Total number of A-share firm-year observations

SSSR phases	Pre-SSSR	Phase 1	Phase 2	Phase 3	TOTAL
Sub-period	2003-2004	2005-06	2007-08	2009-10	
ST firms	612	586	560	569	2,327
Non-ST firms	1,758	1,946	2,258	2,978	8,940
SOEs	1,520	1,610	1,606	1,606	6,342
Non-SOEs	850	922	1,212	1,941	4,925
Total Observations	2,370	2,532	2,818	3,547	11,267

Table 5.4 shows there are total of 11,267 A-share firm-year observations. Amongst the 11,267 observations, there are 2,327 ST firm-year observations and 8,940 Non-ST firm-year observations. There are 6,342 SOE observations and 4,925 Non-SOE observations. The number of SOE observations remains similar throughout the testing periods, while the number of Non-SOE observations has more than doubled by the third phase of the SSSR.

Table 5.5: Industry firm-year distribution

SSSR Phases	Pre-SSSR	Phase 1	Phase 2	Phase 3	TOTAL
Industry	2003-04	2005-06	2007-08	2009-10	
Finance	30	31	40	47	148
Utilities	255	265	296	407	1,223
Property and Construction	270	280	293	311	1,154
Natural Resource	108	105	111	132	456
Manufactory	1,463	1,601	1,823	2,370	7,257
Commerce	244	250	255	280	1,029
Total Observations	2,370	2,532	2,818	3,547	11,267

Table 5.5 shows that manufacturing and industrial firms dominate the Chinese A-share stock market, accounting for over 65%. The financial sector is small and under the strict

government control: the number of financial firms listed is only eighteen, with sixteen of those being under government control. Firms in finance, utilities, and property & construction are not included in the data set used in Chapters 5, 6 and 7; but are included in the data set for Chapter 8.

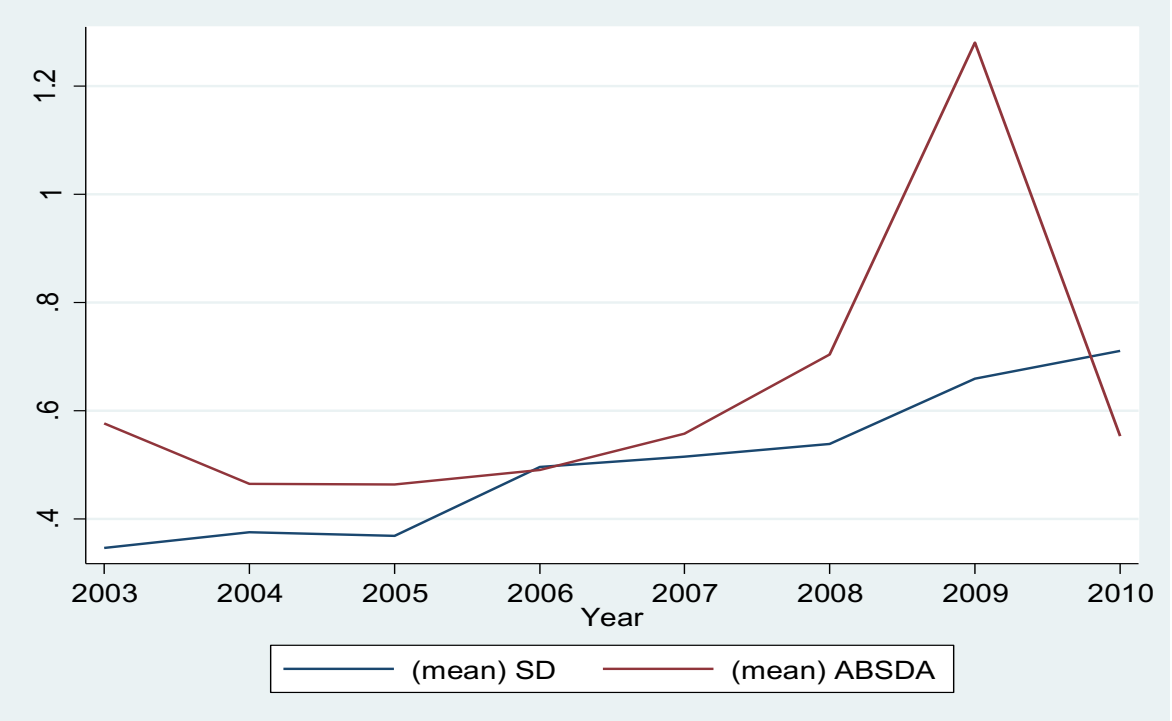
5.5 Results

The following three subsections, 5.5.1, 5.5.2 and 5.5.3, provide a comprehensive and detailed report on the data and results - both univariate results and multivariate regression results. Subsection 5.5.4 presents and discusses the key findings.

5.5.1 The pattern of accrual quality

Figure 5.2 illustrates the changing levels of the measure of working capital accrual quality (SD) and the absolute value of discretionary accruals (|DA|) over the period of 2003-2010. Figure 5.2 shows that the mean of SD increases over the testing period from 2003 to 2010, which suggests a decreasing working capital accrual quality over the study period. The mean of |DA| also shows a continuing increasing profile over the majority of the study period, albeit with a maximum in 2009 and then, a sharp reduction in 2010.

Figure 5.2: The pattern of accrual quality proxies: SD and |DA|



The changes of SD and |DA| in the testing period are consistent with the prediction that there was an incentive to manipulate earnings throughout the period – to drive them down, then up, and then down again. The increased managerial manipulation incentives in the three phases of the SSSR led to an increase in SD and |DA| and thus, a decrease in accrual quality. From this very simple overview, it is not possible to detect any evidence that IFRS-convergence in 2007 reduced (the impact of) earnings manipulation via accruals manipulation.

5.5.2 Univariate analysis

Table 5.6 presents the summary statistics of the variables used in the working capital accrual and abnormal accrual quality estimations, split by the different implementation phases of the SSSR. In this table, the variables shown in the last two are dummies in respect of sample composition, defined as follows: STDUM is 1 for ST firm-years, 0 otherwise; and SOEDUM is 1 for SOE firm-years, 0 otherwise.

Accrual quality: SD and |DA|

From the pre-SSSR period, 2003-2004, to SSSR 1 phase 1, the 2005-2006 negotiation period, the mean of SD and |DA| both increased, implying a decrease in accrual quality. These changes are, however, not significant. From phase 1 of the SSSR (negotiation period, pre-IFRS-convergence, 2005-2006) to phase 2 (lock-in period, post-IFRS-convergence, 2007-2008), the mean of SD significantly increases from 0.347 to 0.374 (+0.027**); and |DA| also significantly increases from 0.448 to 0.465 (+0.017[*]).[52] These changes imply a significant reduction in accrual quality between phases 1 and 2 of the SSSR implementation, thus both providing support for hypothesis H5.2.

From phase 2 of the SSSR implementation (lock-in period, 2007-2008) to phase 3 (free trading of previously untradeable shares, 2009-2010), both phases being post-IFRS-convergence, the mean SD significantly increases again, from 0.374 to 0.483 (+0.109***) and mean |DA| also increases again, from 0.466 to 0.493 (+0.027[*]). These changes imply a

[52] In the interests of brevity in the text, the notation *** represents significance at the 1% level; ** significance at the 5% level; and * significance at the 10% level. If (some) significance 'stars' are placed in square brackets (e.g. [*]), represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey clearly the nature of the significance.

significant further reduction in accrual quality between phases 2 and 3 of the SSSR implementation, and give positive evidence for hypothesis H5.3.

The conformity of the univariate data with hypotheses/expectations is suggestive that the changes in accounting-based accrual earnings quality were driven principally by the regulatory reform of the financial market, and that the accounting standards reform did not (for whatever reason – be it design, application or whatever) result in an accruals quality improvement effect sufficient to counteract this.

The firm specific characteristics

From 2003-04 to 2005-06 (i.e. between the pre-SSSR phase and SSSR phase 1), the means of firm-level characteristics of net inventory (INV), log market value of equity (SIZE), debt leverage level (LEV), and operating cash flow (CFO) all increase, but only SIZE does so significantly (+0.097***). Mean credit ratio (CR) and profitability dummy both decrease significantly (-0.206*** and -0.029***, respectively), whilst non-operating income (NOI) also decreases, but not significantly. The decreases in CR and PROFIT are consistent, albeit only on a simple univariate basis, with the hypothesised incentive and action to downwards manipulate earnings over the period 2005-06.

From 2005-06 to 2007-08 (i.e. between SSSR implementation phases 1 and 2), the mean of INV, SIZE, CR and NOI all increased significantly (0.019**, 0.139***, 0.269*** and 0.014***, respectively). The changes in CFO (increase) and LEV (decrease) were insignificant. The significant increases in SIZE, CR and NOI, alongside reducing accrual quality, are consistent (albeit only on a simple, univariate basis) with the hypothesised incentive and action to upwards manipulate earnings from 2007-08.

From 2007-08 to 2009-10 (i.e. from SSSR phases 2 to phase 3), mean INV, SIZE and CR increases significantly (by +0.038***, +0.107*** and +1.227***, respectively), while mean LEV and NOI decreases significantly (-1.607* and -0.004*, respectively). The mean of CFO increases, but insignificantly. The significant reduction in NOI, alongside reducing accrual quality, is consistent (albeit only on a simple, univariate basis) with the hypothesised incentive and action to downwards manipulate earnings for 2009-10, although the significant change

in CR might suggest the opposite. The only control variable that shows consistent and significant change period to period is SIZE, the mean of which grows in a monotonic fashion.

Corporate governance variables

The number of firm-year observations with auditors from the Big 4 is relatively small, being 900 in total. The mean of AUDIT over the study period phases varies between 0.030 and 0.038, that is, only 3-4% of firm-years were subject to audit from the Big 4 external auditors. Huang *et al.* (2014) stated that Chinese listed firms prefer local auditing firms rather that the Big 4. They pointed out that the entry of the large, international auditing firms into China has been a slow process, and that the services those international firms are permitted to offer Chinese clients is restricted. As a means of market entry, the Big 4 firms have affiliated with Chinese domestic accounting firms.[53]

There is a series of significant increases, phase to phase, in the mean proportion of managerial ownership (MOWN): from 0.012 to 0.018 (+0.008***), then to 0.044 (+0.026***), then finally to 0.096 (0.064***) which represents a nine fold increase from a mean of 1.2% at the beginning of the study period to nearly 10% at the end. The mean controlling shareholder ownership proportion, mean CONCEN, decreases significantly from 0.422 from 2003-04 to 0.385 over the period 2005-06 (-0.037***), whilst decreasing significantly again to 0.369 in 2007-08 (-0.014***). It then significantly increases, however, to 0.390 from 2009-10 (0.021***) in phase 3 of the SSSR.

The corporate board is an important governance device which is required to monitor management behaviour, given separation of ownership and control (Beasley, 1996; Klein, 2002; Fama and Jensen, 1983b; Jensen, 1993). In China, however, as per the foregoing, over the period of this study, there was preservation of a mean of around 40% controlling shareholder ownership proportion, whilst the mean managerial ownership proportion rose to around 10%. Wu and Petal (2014) pointed out that in Chinese listed firms, corporate managers backed by controlling shareholders are the dominant group. Hence, the local SOE hierarchy (as previously discussed/defined) had the opportunity to act in its own interest,

[53] Price Waterhouse with Zhong Tian, Deloitte with Hua Yong, KPMG with Hua Zhen and Ernst&Young with Hua Ming.

with protection of the minority and reduction in agency costs being unlikely to be a primary concern and hence, there would appear to have been scope for the hypothesised manipulation of accruals/earnings.

Table 5.6: Chapter summary statistics

	Pre-SSSR (2003-04)				Phase 1 (2005-06)				Phase 2 (2007-08)				Phase 3 (2009-10)			
	Mean	**Median**	**St Dev**	**Obs**	**Mean**	**Median**	**St Dev**	**Obs**	**Mean**	**Median**	**St Dev**	**Obs.**	**Mean**	**Median**	**St Dev**	**Obs.**
SD	0.345	0.223	0.469	867	0.347	0.221	0.498	1841	0.374	0.238	0.521	2035	0.483	0.263	1.491	2349
|DA|	0.447	0.345	0.404	884	0.449	0.363	0.400	1880	0.466	0.349	0.639	2055	0.493	0.376	1.143	2361
SIZE	21.085	21.030	0.892	1815	21.181	21.118	0.975	1956	21.317	21.227	1.109	2188	21.423	21.309	1.183	2781
LEV	1.403	0.930	6.903	1815	1.720	1.067	6.890	1956	2.130	0.992	42.160	2188	0.523	0.817	29.078	2782
CR	2.559	2.030	1.960	1815	2.352	1.869	1.714	1948	2.622	1.968	3.330	2188	3.902	2.102	11.394	2782
INV	0.146	0.067	0.784	1810	0.146	0.086	0.561	1946	0.166	0.103	0.221	2186	0.203	0.103	0.446	2779
NOI	0.008	0.001	0.119	1767	0.008	0.005	0.001	1911	0.019	0.003	0.150	2186	0.015	0.004	0.066	2779
PROFIT	0.878	1	0.328	1815	0.836	1	0.370	2532	0.880	1	0.325	2817	0.918	1	0.274	3546
CFO	0.061	0.053	0.104	886	0.067	0.057	0.124	1881	0.063	0.057	0.228	2055	0.065	0.056	0.235	2363
AUDIT	0.034	0	0.182	1815	0.038	0	0.192	2532	0.032	0	0.177	2817	0.030	0	0.173	3457
CONCEN	0.422	0.356	0.195	1942	0.385	0.295	0.180	2381	0.370	0.284	0.170	2667	0.390	0.311	0.179	3374
MOWN	0.012	0.000	0.071	2343	0.018	0.000	0.081	2435	0.044	0.000	0.134	2605	0.098	0.000	0.195	3306
STDUM	0.258	0	0.438	2370	0.231	0	0.422	2532	0.200	0	0.399	2817	0.160	0	0.367	3545
SOEDUM	0.641	1	0.480	2370	0.636	1	0.481	2532	0.570	1	0.495	2817	0.453	0	0.498	3545

This table presents summary statistics of the variables used in the accrual quality estimations (mean, 50 percentile, standard deviation and number of observations. The variables are as previously defined in Table 5.2.

Accrual quality: SD and |DA| in subsamples

Table 5.7 presents the mean values of the accrual manipulation proxies, SD and |DA|, estimated in this chapter for the full sample for firm-years; and also, with the sample split by: (i) ST versus Non-ST firms; and (ii) SOEs versus Non-SOEs. As discussed above, for the full sample data, the increase in the means of both SD and |DA| between 2003-04 and 2005-06 is insignificant, but the subsequent increases (2007-08 and finally, for 2009-10) are significant. The overall picture is that there was a decline in accrual quality over the course of the market and accounting reforms. The pattern of increase in SD, and the significance of the increases, is similar for ST firms (the increases being insig, +0.465*[*] and +0.711*[*], respectively), but while |DA| increases each phase, the only significant one is from 2005-06 to 2007-08 (+0.777*[*]). By contrast, the mean SD for Non-ST firms significantly decreases (-0.026**) from the pre-SSSR phase to SSSR phase 1, but then significantly increases in each for the following two phases (by +0.027**, then +0.043***). The mean |DA| for Non-ST firms drops only insignificantly with the arrival of phase 1 of SSSR and then, significantly increases in the following phase (+0.014*[*]), whilst finally dropping insignificantly again between this and the last phase.

Table 5.7: Accruals quality proxies: mean values by SSSR phases

Sample group	Accrual quality proxy	Pre-SSSR1 (2003-04)	SSSR Phase 1 (2005-06)	SSSR Phase 2 (2007-08)	SSSR Phase 3 (2009-10)
Full Sample	SD	0.381	0.442	0.549	0.695
	|DA|	0.462	0.468	0.644	0.934
ST firms vs. …	SD	0.456	0.810	1.275	1.986
	|DA|	0.419	0.443	1.220	2.883
Non-ST firms	SD	0.356	0.330	0.357	0.400
	|DA|	0.477	0.476	0.490	0.485
SOEs vs. …	SD	0.346	0.410	0.473	0.582
	|DA|	0.493	0.501	0.524	1.317
Non-SOEs	SD	0.450	0.500	0.662	0.820
	|DA|	0.404	0.409	0.826	0.505

This table presents the mean comparison of the estimated accrual manipulation proxies used in the analyses. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

For SOEs, mean SD increases insignificantly from pre-SSSR to phase 1 of SSSR and then, increases significantly (+0.063*[*]) from phase 1 to phase 2, whilst finally increasing insignificantly from phase 2 to phase 3. Similar findings apply for |DA| among SOEs. The SD of Non-SOEs increases with each passing phase, but significantly only in the transition from phase 1 to phase 2 of SSSR (+0.162*[*]). The |DA| increases for Non-SOEs over the first two phases are insignificant and it decreases in the final phase, but this is significant (-0.321*[*]).

The overall finding is one of increasing accrual manipulation over the progress of the market and financial reforms, largely consistent across SOEs/Non-SOEs and ST firms/Non-ST firms. In comparison for ST versus Non-ST, the former has higher SD in all phases and the difference grows by phase. Moreover, ST firms have higher |DA| post IFRS convergence. The findings seem to suggest that IFRS convergence was exploited particularly by ST firms. When comparing SOEs and Non-SOEs, the latter have higher SD in all phases; SOEs have higher |DA| in most (not in phase 2 of SSSR) especially in the final phase, which may have been caused by the boosted incentives after the shares became tradable.

5.5.3 Regression results-detailed report

This subsection provides a comprehensive report on the multivariate regression results, whilst the next highlights and discusses the key results.

The managerial incentives related to the implementation of SSSR, despite the adoption of IFRS-converged CAS, might have resulted in decreased in accruals and earnings quality. The phasing of SSSR is key here, in this chapter there is separation between: (i) pre-SSSR, pre-IFRS convergence (2003-04); (ii) SSSR phase 1 (negotiation phase, 2005-06), still pre-IFRS convergence (with associated dummy variable SSSR1); (iii) SSSR phase 2 (lock-in phase, 2007-08) and IFRS convergence (with associated dummy variable IFRS); and SSSR phase 3 (SSSR complete, free trading of previously non-tradeable shares, 2009-10) post-IFRS-convergence (with associated dummy variable SSSR3).

In this section, results are reported from estimations of Model (5.5) with SD and |DA|, in turn, the dependent variable in Model (5.5). Further, also reported are estimations of Model (5.5) with $|DA^{+}|$ and $|DA^{-}|$ (income-increasing discretionary accruals and income-

decreasing discretionary accruals, respectively) as the dependent variable, in turn, for Model (5.5).

To test the first hypothesis, H5.1, Model (5.5) (with different dependant variables as above) is estimated with DUM replaced by the variable SSSR1, which takes the value 1 for the period 2005-06 and 0 for the period 2003-04. It takes one for the post-SSSR1 period of 2005-2006 after SSSR is announced and during the negotiation period. To test hypothesis H5.2, Model (5.5) is estimated with DUM replaced by variable IFRS, which takes the value 1 for the period 2007-08 and 0 for the period 2005-06. As regards hypothesis H5.3, Model (5.5) is estimated with DUM replaced by variable SSSR3, which takes the value 1 for the period 2009-10 and 0 for the period 2007-08. The multivariate results reported in this chapter are from panel estimation of regression models, with fixed effects at the firm level. In all cases the Hausman test (prob>chi2=0.000 in all cases) points to a fixed-effects model.

Pre-SSSR to Phase 1: 2003-2006

Over the period 2003-2006, there was no impact from a change of accounting standards: IFRS-converged CAS came into force with effect from 2007. The first columns of Tables 5.8 and Table 5.9 present the results of estimation of accrual quality Model 5.5 based on all firm-year observations over the period 2003-2006. Tables 5.8 and Table 5.9 also show the results of the estimation performed separately for Non-ST firm-years, ST firm-years, Non-SOE firm-years and SOE firm-years with regard to SD, with $|DA^{+}|$ and $|DA^{-}|$ as the dependent variables.

Table 5.8 presents the results of the estimation of Model (5.5) with SD as the dependent variable. The results of the first column of Table 5.8 show that the estimated coefficient on SSSR1 is not significant for the whole sample of firm years and, looking across the second to fifth columns of the table, an insignificant coefficient is returned when considering, in turn, just Non-ST firms, ST firms, Non-SOEs and SOEs. Hence, the results of the estimation of Model (5.5) from 2003-2006 with SD as the dependent variable do not provide any evidence as regards H5.1. Of more interest in the results of Table 5.8, however, are another set of consistent “not significant” estimated coefficients, i.e. those for AUDIT. These suggest that there was no mitigating effect upon accrual manipulation from Big 4 audits, thus speaking to the lack of strength/effectiveness of the auditing process and profession in the

Chinese context.[54] Lack of significance on the AUDIT control variable is repeated in all the estimations in this chapter and is revisited in the discussion below on the control variable results.

Table 5.9 presents the results of estimation of Model (5.5) with discretionary accruals (three versions) as the dependent variable. In the first column of Table 5.9, no significance is seen on the estimated coefficient of SSSR1 considering all firm-years, and with |DA| as the dependant variable. This dependent variable includes both income-increasing and income-decreasing discretionary accruals. More insight may be gained by considering income-increasing accruals, $|DA^{+}|$ and income-decreasing accruals, $|DA^{-}|$, separately as dependent variables. Whilst a significant estimated coefficient on SSSR1 cannot be found in the $|DA^{-}|$ regression estimations, the $|DA^{+}|$ regression estimations give significant results: the estimated coefficient on SSSR1 is -0.039**[*] for the whole sample of firm-years, -0.054**[*] for Non-ST firms and -0.051** for SOEs, thus indicating a significant reduction in income-increasing accruals for these two sub-samples with the arrival of the first phase of SSSR. With there being no corresponding decrease in income-reducing accruals, this is consistent with net downward pressure on earnings via a cessation of upward manipulation of earnings, and so a net shift in balance away from income-increasing accruals towards income-decreasing ones. This provides some (albeit weak) evidence in line with H5.1 amongst SOEs and firms not subject to ST designation.

For completeness, the table in Appendix 5.3 shows the results for the |DA| regression for Non-ST versus ST firms, and for Non-SOEs versus SOEs. Here, a significant negative estimated coefficient for SSSR1 is found for Non-ST firms, and for SOEs. But, contrary to conventional interpretation (i.e. reduced discretionary accruals implying high accrual quality), these results can be seen to be driven by an asymmetric reduction in discretionary accruals – a reduction only in income-increasing accruals, as discussed above.

[54] Whilst only 3-4% of firm years were audited by the Big 4, as previously discussed, this still means some 400 firm-year observations.

Table 5.8: Estimations of accrual quality: SD (Model 5.5): firm years 2003-2006

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
SSSR1	-0.017	-0.020	-0.021	-0.048	0.002
	(0.017)	(0.017)	(0.050)	(0.036)	(0.017)
SIZE	-0.149***	-0.128**	-0.235**	-0.376***	-0.030
	(0.048)	(0.053)	(0.114)	(0.093)	(0.052)
LEV	-0.000	-0.000	-0.001	-0.002	0.001
	(0.001)	(0.012)	(0.002)	(0.002)	(0.002)
CR	-0.004	-0.008	0.031	-0.019	0.002
	(0.010)	(0.009)	(0.063)	(0.022)	(0.010)
INV	-0.005	-0.003	-0.011	-0.002	-0.001
	(0.014)	(0.015)	(0.030)	(0.018)	(0.064)
NOI	-0.052	-0.077	0.200	0.070	-0.030
	(0.155)	(0.136)	(0.634)	(0.622)	(0.133)
PROFIT	-0.031	0.008	-0.074	-0.035	-0.021
	(0.029)	(0.036)	(0.059)	(0.060)	(0.031)
CFO	1.490***	0.892***	1.815***	1.877***	0.734***
	(0.081)	(0.115)	(0.147)	(0.123)	(0.121)
MOWN	-1.051	-1.030	-1.128	-1.329	1.599
	(0.976)	(1.054)	(2.227)	(1.244)	(8.754)
CONCEN	-0.000	0.000	-0.001	-0.006**	0.003**
	(0.001)	(0.001)	(0.004)	(0.003)	(0.001)
AUDIT	-0.150	-0.161	-0.083	-0.111	-0.147
	(0.116)	(0.100)	(0.605)	(0.525)	(0.098)
Constant	3.484***	3.018***	5.308**	8.442***	0.815
	(1.021)	(1.140)	(2.396)	(1.947)	(1.126)
Observations	2,432	1,878	554	834	1,598
R-squared	0.189	0.062	0.325	0.325	0.044

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Table 5.9: Estimations of accrual quality: DA (Model 5.5): firm years 2003-2006

Dependent var:	$\|DA\|$	$\|DA^+\|$					$\|DA^-\|$				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	All	All	Non-ST	ST	Non-SOE	SOE	All	Non-ST	ST	Non-SOE	SOE
SSSR1	-0.022	-0.039**[*]	-0.054**[*]	-0.008	-0.021	-0.051**	-0.025	-0.036	-0.027	-0.055	-0.016
	(0.014)	(0.018)	(0.024)	(0.030)	(0.024)	(0.025)	(0.019)	(0.021)	(0.046)	(0.031)	(0.024)
SIZE	0.253***	-0.008	-0.011	0.004	-0.015	0.009	0.356***	0.393***	0.308**	0.366***	0.387***
	(0.039)	(0.049)	(0.077)	(0.065)	(0.051)	(0.088)	(0.062)	(0.079)	(0.120)	(0.105)	(0.077)
LEV	-0.001	0.004	0.026**	0.002	0.001	0.010*	-0.000	0.026	-0.000	0.001	-0.004**
	(0.001)	(0.003)	(0.012)	(0.003)	(0.003)	(0.005)	(0.001)	(0.023)	(0.001)	(0.001)	(0.002)
CR	-0.012	-0.000	0.000	0.037	-0.003	0.001	-0.029	0.006	-0.307**	0.002	-0.049*
	(0.008)	(0.008)	(0.009)	(0.035)	(0.013)	(0.010)	(0.022)	(0.022)	(0.085)	(0.031)	(0.029)
INV	-0.010	-0.009	0.147*	-0.019	-0.011	0.120	-0.095	-0.101	-0.130	-0.065	-0.091
	(0.011)	(0.014)	(0.079)	(0.012)	(0.012)	(0.082)	(0.064)	(0.068)	(0.172)	(0.081)	(0.100)
NOI	0.116	0.111	-0.171	0.279	-0.107	0.285	0.124	0.146	-0.399	0.546	0.115
	(0.128)	(0.384)	(0.695)	(0.396)	(0.563)	(0.504)	(0.129)	(0.125)	(1.198)	(1.064)	(0.135)
PROFIT	-0.018	0.002	0.002	0.009	0.014	0.018	0.031	-0.011	0.159***	-0.043	0.043
	(0.024)	(0.032)	(0.051)	(0.036)	(0.039)	(0.047)	(0.034)	(0.048)	(0.059)	(0.060)	(0.043)
CFO	0.116*	0.555***	0.596***	0.193	0.061	0.779***	-0.171**	-0.088	-0.130	-0.216**	0.018
	(0.066)	(0.106)	(0.125)	(0.215)	(0.160)	(0.139)	(0.087)	(0.194)	(0.114)	(0.093)	(0.220)
MOWN	0.778	0.776	2.130	0.299	0.739	9.445	0.448	0.356	26.280	0.356	-27.220**
	(0.810)	(0.873)	(1.981)	(0.872)	(0.709)	(8.096)	0.002	0.003**	-0.001	0.000	0.003*
CONCEN	0.001	-0.000	-0.001	0.005*	0.001	-0.000	(0.001)	(0.001)	(0.003)	(0.002)	(0.002)
	(0.001)	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)	0.071	0.169	-0.500	0.133	0.069
AUDIT	0.029	0.108	0.130	₥	₥	0.110	(0.114)	(0.117)	(0.358)	(0.294)	(0.126)
	(0.091)	(0.164)	(0.171)			(0.178)	-7.090**	-8.036***	-5.403**	-7.228***	-7.633***
Constant	-4.919***	0.487	0.514	0.044	0.608	0.084	(1.334)	(1.703)	(2.547)	(2.222)	(1.677)
	(0.835)	(1.037)	(1.640)	(1.338)	(1.057)	(1.867)	0.002	0.003**	-0.001	0.000	0.003*
Observations	2,314	1,049	780	269	395	654	1,265	986	279	393	872
R-squared	0.057	0.064	0.097	0.058	0.020	0.112	0.058	0.062	0.178	0.073	0.083

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance. AUDIT omitted (₥) for the ST and Non-SOE coefficient due to insufficient observations in those groups.

Arrival of IFRS-converged CAS and transition from phase 1 to phase 2 in the SSSR: 2005-2008

In this sub-period, there is a concurrent transition from phase 1 (negotiation) to phase 2 (lock-in) of the SSSR implementation, and from the old Chinese GAAP to IFRS-converged CAS from phase 1 (convergence) to phase 2 (lock-in period). From the beginning of 2007, when IFRS-converged CAS came into force, previously non-tradable shares remained untradeable for two years. Over this lock-in period, management had the incentive to drive earnings upwards in order to drive share prices also upwards and then be able to sell high when the non-tradeable shares became tradeable after 2008.

Table 5.10 shows the results of estimation of the SD regression. The first column shows an estimated coefficient for IFRS_SSSR2 that is positive and highly significant (0.311***). So, the transition from 2005-06 to 2007-08 begins a significant deterioration in working capital accrual quality. This result is borne out in the sub-divided samples (results in columns 2 to 5 of Table 5.10), with the estimated coefficients on IFRS_SSSR2 being 0.064***, 0.699***, 0.526*** and 0.311*** for Non-ST firms, ST firms, Non-SOEs and SOEs, respectively. Hence, based on SD, there is strong and consistent evidence of a deterioration in working capital accrual quality in the transition from phase 1 to phase 2 of SSSR, concurrent with the adoption of IFRS-converged CAS. This provides strong support for the accrual quality prediction of hypothesis H5.2.

Table 5.11 presents the results of the discretionary accruals regressions. In the first column, with |DA| as the dependent variable, the estimated coefficient on IFRS_SSSR2 is (weakly) significant and negative (-0.037*). Conventional interpretation at this point would be to deduce a small improvement in accrual quality. In the context of this study, however, it is important to distinguish between income-increasing and income-decreasing discretionary accruals. In the directional discretionary accrual investigations, the second column of Table 5.11 shows there is a highly significant and positive relationship between income-increasing discretionary accruals and the IFRS_SSSR2 dummy (0.074***), which indicates that there was a significant increase in the level of income-increasing accruals with the arrival of the second phase of the SSSR, despite (or perhaps even assisted by) the adoption of IFRS-converged CAS. This result is seen also in the sub-sample regressions in columns three to six of Table 5.11, with the estimated coefficients on IFRS_SSSR2 being 0.063***, 0.133*[*], 0.080**[*] and

0.100***, respectively. At the same time, as regards income-decreasing accruals, a negative and significant estimated coefficient on IFRS_SSSR2 (-0.113**) is seen in the seventh column of Table 5.11, thus indicating a significant reduction in income-decreasing accruals over the period 2007-08. As per columns eight and eleven of the table, the result is similar for Non-ST firms and SOEs (estimated coefficients being -0.123*** and -0.071[*], respectively), but there is no significance found for the estimated IFRS_SSSR2 coefficients for ST firms or Non-SOEs.

Overall, the significant increase detected in income-increasing accruals and significant decrease detected in income-decreasing accruals in the transition to the second phase of the SSSR implementation presents compelling evidence of a shift towards income-increasing discretionary accruals and away from income-decreasing accruals and so, the upwards management of earnings. This is strong evidence supporting the accruals shift element of hypothesis H5.2. In the light of this, the small decrease found as regards all/unsigned accruals (|DA|) may not be interpreted, as would be conventional, as a modest increase in accruals and earnings quality, but rather, simply as a result of a netting off between increased incidence/size of income-increasing accruals and decreased incidence/size of income-decreasing accruals. For completeness, the table in Appendix 5.4 shows the results for the |DA| regression for Non-ST versus ST firms, and for Non-SOEs versus SOEs. Here, a significant negative estimated coefficient for IFRS_SSSR2 is found only for the Non-ST sub-sample, with there being no significance in the estimated coefficient amongst the ST, Non-SOE or SOE groups. Again, the result for ST firms is driven by an asymmetric reduction in discretionary accruals between those which are income-increasing, and those which are income-decreasing.

The results here, as regards the transition from the first (negotiation) phase of SSSR to the second (lock-in) phase, and support for the associated chapter hypothesis, are strong and consistent, In fact, they are stronger and more consistent than the results/hypothesis support as regards the transition from pre-SSSR to the first (negotiation) phase of SSSR. This is particularly interesting, since the second transition was accompanied by adoption of IFRS-converged CAS. It is consistent with the notion that IFRS-convergence in China from 2007 could not (and did not) curtail earnings management in response to SSSR-related incentives. Indeed, it might be seen as suggesting that managers' earnings management activities were less constrained under IFRS-converged CAS than they were under the old CAS.

Table 5.10: Estimations of accrual quality: SD (Model 5.5): firm years 2005-2008

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
IFRS_SSSR2	0.311***	0.064***	0.699***	0.526***	0.311***
	(0.055)	(0.012)	(0.240)	(0.119)	(0.055)
SIZE	-0.254***	-0.052***	-0.649***	-0.473***	-0.254***
	(0.044)	(0.010)	(0.183)	(0.090)	(0.044)
LEV	-0.000	0.018***	-0.000	-0.000	-0.000
	(0.001)	(0.005)	(0.002)	(0.001)	(0.001)
CR	-0.002	0.001	-0.014	-0.006	-0.002
	(0.007)	(0.001)	(0.039)	(0.011)	(0.007)
INV	0.016	-0.001	0.310**	-0.025***	0.016
	(0.014)	(0.003)	(0.135)	(0.057)	(0.014)
NOI	0.082*	-0.043	-0.134	1.098***	0.082*
	(0.191)	(0.102)	(0.485)	(0.332)	(0.191)
PROFIT	-0.092*	-0.016	-0.134	-0.158	-0.092*
	(0.068)	(0.016)	(0.246)	(0.145)	(0.068)
CFO	2.016***	0.479***	2.222***	2.287***	2.016***
	(0.067)	(0.036)	(0.170)	(0.104)	(0.067)
MOWN	-0.057	0.075	-1.204	-0.137	-0.057
	(0.581)	(0.106)	(4.493)	(0.827)	(0.581)
CONCEN	0.001	0.002***	0.001	0.003*	0.001
	(0.003)	(0.001)	(0.013)	(0.006)	(0.003)
AUDIT	-0.037	-0.071	0.233	0.021	-0.037
	(0.239)	(0.045)	(1.435)	(0.657)	(0.239)
Constant	5.548***	1.289***	13.780***	10.156***	5.548***
	(0.921)	(0.211)	(3.729)	(1.911)	(0.921)
Observations	10,670	8,908	1,762	5,458	10,670
R-squared	0.096	0.031	0.112	0.112	0.096

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2=0 for 2005-2006; 1 for 2007-2008. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Table 5.11: Estimations of accrual quality: DA (Model 5.5): firm years 2005-2008

Dependent var:	$\|DA\|$	$\|DA^+\|$					$\|DA^-\|$				
	(1) All	(2) All	(3) Non-ST	(4) ST	(5) Non-SOE	(6) SOE	(7) All	(8) Non-ST	(9) ST	(10) Non-SOE	(11) SOE
IFRS_SSSR2	-0.037*	0.074***	0.063***	0.133*[*]	0.080**[*]	0.100***	-0.113**	-0.123***	0.053	-0.148	-0.071[*]
	(0.034)	(0.025)	(0.019)	(0.077)	(0.034)	(0.031)	(0.055)	(0.025)	(0.221)	(0.123)	(0.048)
SIZE	0.293***	0.045**	0.038**	0.048	0.050*	0.051**	0.297***	0.173***	0.681***	0.313***	0.315***
	(0.027)	(0.019)	(0.015)	(0.055)	(0.028)	(0.024)	(0.047)	(0.023)	(0.203)	(0.101)	(0.042)
LEV	0.000	0.006***	0.024***	0.004	0.009***	0.001	-0.000	-0.009	0.000	-0.000	0.002
	(0.000)	(0.001)	(0.006)	(0.003)	(0.002)	(0.002)	(0.001)	(0.009)	(0.001)	(0.001)	(0.002)
CR	0.004*	-0.006	-0.001	-0.054**	-0.002	-0.026***	0.008	-0.016**	0.015	-0.009	0.014*
	(0.004)	(0.004)	(0.002)	(0.023)	(0.004)	(0.009)	(0.010)	(0.007)	(0.026)	(0.026)	(0.008)
INV	-0.026*	-0.008*	0.007	0.012	0.055***	0.005	-0.064**	-0.027**	-1.007***	-0.011	-0.188***
	(0.009)	(0.004)	(0.005)	(0.034)	(0.018)	(0.004)	(0.032)	(0.013)	(0.378)	(0.050)	(0.049)
NOI	1.006***	0.378***	-0.430**	0.387***	0.417***	-0.352***	0.243	-0.143	0.843	-1.049	0.576**
	(0.120)	(0.060)	(0.206)	(0.112)	(0.066)	(0.118)	(0.301)	(0.189)	(0.822)	(1.003)	(0.225)
PROFIT	-0.116***	0.064**	0.080***	0.058	0.037	0.043	-0.183***	-0.033	-0.317[*]	-0.217[*]	-0.166***
	(0.042)	(0.031)	(0.027)	(0.077)	(0.043)	(0.040)	(0.061)	(0.030)	(0.210)	(0.138)	(0.052)
CFO	2.737***	0.692***	0.530***	0.700***	0.227***	2.325***	4.728***	1.267***	5.529***	4.587***	4.921***
	(0.041)	(0.047)	(0.066)	(0.093)	(0.050)	(0.095)	(0.086)	(0.074)	(0.201)	(0.159)	(0.084)
MOWN	0.850**	1.800***	0.096	3.247***	1.868***	0.094	0.752	0.424*	-1.680	0.724	22.295***
	(0.341)	(0.461)	(0.429)	(1.055)	(0.473)	(1.347)	(0.626)	(0.245)	(5.552)	(0.845)	(5.559)
CONCEN	0.004**	0.004***	0.004***	0.003	0.001	0.005***	0.004*	0.005***	0.002	-0.001	0.007***
	(0.002)	(0.001)	(0.001)	(0.004)	(0.002)	(0.002)	(0.003)	(0.001)	(0.011)	(0.006)	(0.002)
AUDIT	-0.102	-0.047	-0.070	0.297	-0.085	-0.035	0.006	0.138	-0.400	0.221	-0.077
	(0.150)	(0.110)	(0.067)	(0.728)	(0.221)	(0.117)	(0.215)	(0.091)	(1.035)	(0.578)	(0.169)
Constant	-6.174***	-0.845**	-0.756**	-0.711	-0.844	-1.058**	-6.155***	-3.362***	-13.644***	-6.213***	-6.741***
	(0.562)	(0.399)	(0.323)	(1.121)	(0.577)	(0.515)	(0.993)	(0.489)	(4.126)	(2.131)	(0.886)
Observations	8,818	3,553	2,690	863	1,335	2,218	5,265	4,363	902	2,361	2,904
R-squared	0.271	0.107	0.059	0.137	0.152	0.265	0.437	0.105	0.528	0.337	0.604

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2= 0 for 2005-2006; 1 for 2007-2008. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Completion of the SSSR in the post IFRS-convergence period: 2007-2010

In this sub-period, 2007-2010, with SSSR completed at the end of 2008 when its lock-in period ended and previously non-tradeable A shares became tradeable - what is called in this study phase 3 of the SSSR implementation - there was no change in accounting standards since IFRS-converged CAS was adopted from 1st January 2007. Table 5.12 show the results of the SD regressions. In the first column of the table, the estimated coefficient on SSSR3 is positive and highly significant (0.072***), indicating for the full sample a reduction in working capital accruals quality in the transition to phase 3 of SSSR. The results for the sub-divided samples, in columns two to five of Table 5.12, are qualitatively similar, with the estimated SSSR3 coefficients being 0.035**[*], 0.141[*], 0.063** and 0.083*** for Non-ST firms, ST firms, Non-SOEs and SOEs, respectively (the result for ST firms is only marginally significant). Hence, there is consistent and commonly strong evidence that working capital accruals quality further declined in the transition to phase 3 of the SSSR implementation, which provides strong support for the accrual quality prediction of hypothesis H5.3.

The results from the estimation of the discretionary accruals regressions are set out in Table 5.13. The first column shows that the estimated coefficient on SSSR3 in the |DA| regression is negative and significant, being -0.043***. Once again, however, conventional interpretation of this as representing an improvement in accrual/earnings quality, is not appropriate in the context of this study, in which there are directional predictions as regards earnings management and thus, concerning income-increasing versus income-decreasing accruals. As regards the directional discretionary accrual investigations, column two of Table 5.13 shows a significant negative estimated coefficient for SSSR3, implying a significant reduction in income-increasing accruals for the full sample. Significant reductions are seen for the Non-ST sub-sample (-0.080***) and the SOE sub-sample (-0.058*[*]), albeit not for the ST or Non-SOE groups. As regards income-decreasing accruals, columns seven to eleven of Table 5.13 show positive estimated coefficients in all cases for SSSR3, but significant only in the case of ST firms (0.167**[*]). As for the 2003-2006 sub-period (results discussed earlier), the reduction in income-increasing accruals, along with maintenance/increase in income-decreasing accruals is consistent with net downward pressure on earnings. This is via a cessation of upward manipulation of earnings, and so a net shift in balance away from

income-increasing accruals towards income-decreasing ones. This provides some evidence in line with H5.3.

For completeness, the table in Appendix 5.5 shows the results for the |DA| regression for Non-ST versus ST firms, and for Non-SOEs versus SOEs. Here, a significant negative estimated coefficient for SSSR3 is found for the Non-ST and SOE sub-samples, with there being no significance in the estimated coefficient amongst ST and Non-SOE groups. But, as before, the significant results are driven by an asymmetric reduction in discretionary accruals between those that are income-increasing, and those that are income-decreasing. Hence, these may not be interpreted to represent increasing accruals/earnings quality. It is concluded here that earnings quality as measured by accruals quality (via both working capital accruals and abnormal accruals) was reduced.

The results lend support for the associated hypothesis over this 2007-2010 period that is stronger and more comprehensive than those for the earlier 2003-2006 period, but not quite not as strongly or comprehensively as those for the middle (2005-2008) period. It is interesting to note that earnings management appears to have been more prolific (to the extent that it may accurately be detected via accruals investigation) in the period after China's adoption of IFRS-converged CAS. The evidence continues to be consistent with the notion that IFRS-convergence in China from 2007 could not (and did not) curtail earnings management in response to SSSR-related incentives. Indeed, it might be seen as suggesting that managers' earnings management activities were less constrained under IFRS-converged CAS.

Table 5.12: Estimations of accrual quality: SD (Model 5.5): firm years 2007-2010

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
SSSR3	0.072***	0.035**[*]	0.141[*]	0.063**	0.083***
	(0.023)	(0.017)	(0.095)	(0.032)	(0.023)
SIZE	-0.066	0.065	-0.272	-0.245***	0.013
	(0.055)	(0.046)	(0.184)	(0.093)	(0.052)
LEV	-0.000	0.026*	-0.000	-0.000	0.001
	(0.000)	(0.014)	(0.000)	(0.000)	(0.001)
CR	0.001	0.005	-0.012	-0.001	0.011
	(0.009)	(0.006)	(0.082)	(0.010)	(0.014)
INV	0.123**	-0.012	-0.060	0.230**	-0.099*
	(0.057)	(0.044)	(0.340)	(0.090)	(0.053)
NOI	-2.767***	0.197	-2.975***	-4.709***	0.640***
	(0.111)	(0.468)	(0.221)	(0.130)	(0.142)
PROFIT	0.136***	-0.010	0.374***	0.232***	0.044
	(0.041)	(0.034)	(0.127)	(0.061)	(0.040)
CFO	0.234**	0.161*	0.496	0.826***	-0.002
	(0.106)	(0.088)	(0.318)	(0.141)	(0.115)
MOWN	-0.468	-0.320	-3.335	-0.656	-15.791***
	(0.686)	(0.435)	(8.408)	(0.651)	(5.112)
CONCEN	-0.001	0.001	-0.007	0.002	-0.001
	(0.003)	(0.002)	(0.011)	(0.003)	(0.003)
AUDIT	0.105	0.100	0.426	0.122	0.083
	(0.172)	(0.117)	(0.840)	(0.258)	(0.167)
Constant	1.735	-1.135	6.311*	5.381***	0.054
	(1.165)	(0.983)	(3.687)	(1.938)	(1.106)
Observations	2,752	2,239	513	1,186	1,566
R-squared	0.273	0.019	0.383	0.657	0.048

Based on firm-year observations 2009-2010 from Chinese listed firms. SSSR3=0 for 2007-2008; 1 for 2009-2010. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Table 5.13: Estimations of accrual quality: DA (Model 5.5): firm years 2007-2010

Dependent var:	$\|DA\|$	$\|DA^+\|$					$\|DA^-\|$				
	(1) All	(2) All	(3) Non-ST	(4) ST	(5) Non-SOE	(6) SOE	(7) All	(8) Non-ST	(9) ST	(10) Non-SOE	(11) SOE
SSSR3	-0.043***	-0.038*[*]	-0.080***	0.006	-0.007	-0.058*[*]	0.007	0.006	0.167**[*]	0.025	0.016
	(0.023)	(0.020)	(0.025)	(0.036)	(0.025)	(0.030)	(0.034)	(0.040)	(0.072)	(0.034)	(0.050)
SIZE	0.431***	0.142***	0.240***	-0.057	-0.103	0.192***	0.488***	0.275**	0.834***	0.322***	0.595***
	(0.045)	(0.048)	(0.067)	(0.062)	(0.070)	(0.070)	(0.089)	(0.119)	(0.151)	(0.123)	(0.119)
LEV	0.000	0.003	0.148***	0.001	0.001	0.004	0.000	0.011	0.000	0.000	0.003
	(0.000)	(0.002)	(0.029)	(0.002)	(0.003)	(0.004)	(0.000)	(0.034)	(0.000)	(0.000)	(0.003)
CR	0.012**	0.006	0.022**	-0.030	0.004	0.009	-0.028	-0.024	-0.195**	-0.046**	0.006
	(0.005)	(0.010)	(0.010)	(0.030)	(0.011)	(0.017)	(0.023)	(0.024)	(0.097)	(0.019)	(0.040)
INV	-0.068**	-0.034	-0.007	-0.060	0.072	-0.078	0.075	0.136	-0.570[*]	-0.097	0.194
	(0.033)	(0.039)	(0.054)	(0.093)	(0.059)	(0.052)	(0.112)	(0.125)	(0.410)	(0.115)	(0.161)
NOI	-0.455***	0.087	-0.384	0.071	0.098	0.071	-0.481	-1.367	-0.870	1.175	-0.644
	(0.108)	(0.064)	(0.559)	(0.056)	(0.070)	(0.117)	(0.732)	(1.279)	(0.884)	(0.949)	(0.986)
PROFIT	-0.110***	0.026	0.070	0.044	0.067	0.029	-0.048	-0.027	-0.060	-0.005	-0.102[*]
	(0.041)	(0.040)	(0.057)	(0.047)	(0.049)	(0.062)	(0.059)	(0.072)	(0.102)	(0.069)	(0.080)
CFO	3.325***	0.263***	0.296***	0.105	0.088	0.275**	0.981***	0.567**	1.244***	0.808***	1.424***
	(0.061)	(0.093)	(0.113)	(0.141)	(0.152)	(0.121)	(0.164)	(0.246)	(0.242)	(0.158)	(0.322)
MOWN	1.165[*]	0.289	0.098	0.721	-0.201	-0.471	-0.440	-0.614	3.663	-0.683	-75.442[*]
	(0.580)	(0.940)	(1.030)	(2.031)	(0.845)	(4.737)	(1.089)	(1.095)	(40.716)	(0.677)	(57.236)
CONCEN	-0.003*	0.012***	0.015***	0.004	0.005**	0.021***	0.002	-0.003	0.012	0.004	0.001
	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.004)	(0.004)	(0.005)	(0.008)	(0.004)	(0.006)
AUDIT	0.051	-0.151	-0.117	₥	-0.095	-0.163	0.192	0.313	-0.110	0.809***	-0.320
	(0.181)	(0.153)	(0.153)		(0.206)	(0.217)	(0.236)	(0.280)	(0.411)	(0.219)	(0.362)
Constant	-8.859***	-3.048***	-5.546***	1.484	2.309	-4.510***	-10.007***	-5.305**	-16.983***	-6.349**	-12.417***
	(0.948)	(1.007)	(1.428)	(1.231)	(1.477)	(1.445)	(1.902)	(2.545)	(3.078)	(2.588)	(2.550)
Observations	2,774	1,369	1,094	275	631	738	1,405	1,161	244	556	849
R-squared	0.059	0.083	0.172	0.064	0.053	0.145	0.131	0.034	0.552	0.350	0.112

Based on firm-year observations 2009-2010 from Chinese listed firms. SSSR3=0 for 2007-2008; 1 for 2009-2010. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

The firm specific characteristics

The findings for the full sample, as set out in Tables 5.8 to 5.13, show that regarding firm size (SIZE) in the SD regressions, given the mainly negative and significant estimated coefficients for SIZE, this provides evidence of larger firms being associated with better working capital accrual quality, which would be consistent with the political costs hypothesis (larger firms being more subject to scrutiny and censure). LEV (total liabilities/total book value of equity) is insignificantly associated with SD and |DA| in all three testing periods, only showing significant positive associated with $|DA^{+}|$ in the transition period of IFRS convergence. The findings suggest that high leverage firms had high income-increasing policies after IFRS convergence. It again seems that IFRS convergence in China assisted in pursuing the purpose of driving up earnings. Credit ratio (CR: total assets/total liability) shows no significant association with SD all three testing periods. INV (total inventory/total assets) shows no significant association with SD in the first and the second testing periods, whilst there is a positive and significant coefficient with it in the final one. The findings with regard to both control variables CR and INV indicate that there was no impact on earnings quality from firm liquidity and efficiency in China, only showing a significant reduction in earnings quality in the last phase of SSSR.

There was further control for related party transactions by adopting non-operating incomes (NOI: non-operating income divided by total assets) (Jian and Wong, 2006). A negative negatively correlation was expected between NOI and accrual quality. As explained in previous studies (Wong and Jiang, 2003; Dai and Chen, 2004), Chinese firms are widely engaged with related party transactions, rather than accruals manipulation to manage earnings. Tables 5.8 and 5.9 show that there is no significant relation between NOI and either SD or |DA| in the first testing period of 2003-06. The findings from Table 5.10 and Table 5.11 support that the association of NOI and either SD or |DA| are significantly positive in the second testing period of 2005-08, which indicates that high NOI is associated with low accrual quality. The results suggest that related party transactions and accrual quality manipulation are not trade off activities, firms that used related party transactions also utilised accrual management to adjust earnings during the transition of IFRS convergence. In the final testing period of 2007-10, the findings from Table 5.12 and Table 5.13 are in line with previous literature that NOI and either SD or |DA| are negatively correlated, which suggests that

Chinese listing A-share firms using related party transactions were less likely to adopt accrual management to manage earnings in the final testing period. The finding from the final testing period is consistent with those from previous literature (Jian and Wong, 2006; Wong and Jian, 2003), however, regarding those in the second testing period under the joint impact of both IFRS convergence and SSSR, Chinese firms were managing earnings not only through the related party transaction, but also, through accruals manipulation.

PROFIT is insignificantly associated with both SD and |DA| in the first testing period; PROFIT has significant and negative association with both SD and |DA| in the second testing period, which indicates firms which reported positive profit are associated with better accrual quality than firms reported a loss. The findings are consistent with the prediction that profitable firms are less likely to manipulate earnings. Cash flow from operations (CFO) shows significant positive association with both SD and |DA| in all three testing periods, which implies that firms with strong operating cash flows were also likely to use discretionary accruals to manage earnings. Positive correlation between accrual quality proxies and CFO has rarely been found in western literature, however, a recent study by Hou *et al.* (2015b) also elicited positive association between |DA| and CFO in the Chinese context. Dechow and Ge (2006) suggested that the accrual anomaly (positive correlation between |DA| and CFO) is caused by the regular use of special items.

Corporate governance variables

Tables 5.8 to 5.13 reveal that corporate governance hardly has any significantly association with accrual quality proxies in China. The MOWN is insignificantly associated with both SD and |DA| in both the 2003-2006 and 2007-2010 testing periods, whilst being positively and significantly associated with |DA| and $|DA^{+}|$ in the transition period of IFRS convergence (SSSR phase 1 to phase 2). Similarly, The CONCEN has no significant association with SD and |DA| in the first testing period and is significantly positively correlated with |DA| and $|DA^{+}|$ under the second testing period, which indicates that a higher proportion of shares owned by the controlling shareholders was associated with a higher level of income-increasing accruals management in the second testing period. Both findings, with regards to the association of MOWN and CONCEN with $|DA^{+}|$ in the second period, suggest that high management ownership and high concentration of controlling shareholders encouraged the incentive of

adopting income-increasing accruals. The significance of the estimated coefficients between $|DA^{+}|$ and MOWN or CONCEN only appears in the transition period of IFRS convergence (phase 1 to phase 2 of SSSR), which further suggests that IFRS convergence in China assisted the SSSR-related incentive of managing earnings upwards. AUDIT does not have significant association with SD and |DA| in all three testing periods, which indicates that whether firms chose the Big 4 as their auditing firm or not had no association with their abnormal accrual quality. The findings again suggest that the Big 4 auditors did not play a significant role in mitigating the discretionary accruals manipulation, which was probably as a result of their lack of strength/effectiveness in the auditing process and profession in the Chinese context.

5.5.4 Summary of the principal results

This subsection summarises the key findings of this chapter, as collated into Table 5.14. In this chapter, it has been hypothesised that: in the negotiation phase of the SSSR, *earnings/accruals quality reduced and there was a net shift from earnings-increasing to earnings-decreasing accruals* (H5.1); in the lock-in phase of the SSSR, *earnings/accruals quality reduced and there was a net shift from income-decreasing to income-increasing accruals* (H5.2); and after completion of the SSSR, *earnings/accruals quality reduced and there was a net shift form income-increasing to income-decreasing accruals* (H5.3). Consistent with and supporting hypotheses H5.1, H5.2 and H5.3, the principal multivariate regression estimation results show the following.

1. Whilst working capital accrual quality (measured by SD) did not change significantly with the arrival of the first phase (negotiation) of the SSSR implementation, it reduced significantly in the transition to phase 2 (lock-in), concurrent with the transition to IFRS-converged CAS (estimated coefficient on IFRS_SSSR2 = +0.311*** in SD regression) and reduced significantly again with the transition to phase 3 (trading of previously non-tradeable shares) of the SSSR implementation (estimated coefficient on IFRS_SSSR2 = +0.072*** in SD regression). There is strong support for the accrual quality predictions of hypotheses H5.2 and H5.3. Working capital accrual quality among Chinese listed firms decreased through the second and third phases of SSSR implementation.

2. The results of regressions of all/unsigned discretionary accruals, |DA|, are not susceptible to conventional interpretation given the Chinese context and the hypotheses of this chapter, which have included directional predictions as regards accruals manipulation. It has been necessary instead to estimate and interpret regressions separately for income-increasing accruals, $|DA^{+}|$ and income-decreasingones $|DA^{-}|$.

3. With the transition to phase 1 of the SSSR, there was a reduction in income-increasing accruals (estimated coefficient on SSSR1 = -0.039**[*] in $|DA^{+}|$ regression), but no significant impact on income-decreasing accruals. So, there was a net shift in balance away from income-increasing accruals towards income-decreasing accruals, with a net downwards effect on earnings. In the transition to phase 2 (lock-in) of the SSSR, concurrent with the transition to IFRS-converged CAS, there was an increase in income-increasing accruals (estimated coefficient on IFRS_SSSR2 = +0.074*** in $|DA^{+}|$ regression) along with a decrease in income-decreasing ones (estimated coefficient on IFRS_SSSR2 = -0.113** in $|DA^{-}|$ regression), thus providing clear evidence of upwards earnings manipulation activity. In the transition to phase 3 (trading of previously non-tradeable shares) of the SSSR implementation, in the post IFRS-convergence period, there was a reduction in income-increasing accruals (estimated coefficient on SSSR1 = -0.038*[*] in $|DA^{+}|$ regression), but without significant change in income-decreasing accruals. So, there was another net shift in balance away from income-increasing accruals towards income-decreasing ones, with a net downwards effect on earnings.

4. These results were found despite the transition to IFRS-converged CAS on 1st January 2007. Moreover, the results and support for the associated hypothesis over this 2007-2010 period are stronger and more comprehensive than those for the earlier 2003-2006 period, but quite not as strong or comprehensive as those for the middle (2005-2008) period. The evidence is consistent with the notion that IFRS-convergence in China from 2007 could not (and did not) curtail earnings management in response to SSSR-related incentives. Indeed, it might

be seen as indicating that managers' earnings management activities were less constrained under IFRS-converged CAS than they were under the old CAS.

5. Given non-significant estimated coefficients for AUDIT, there has been no detected mitigating effect on accrual manipulation by Big 4 audits, which speaks to the lack of strength/effectiveness of the auditing process and profession in the Chinese context.

As regards the changes in accrual quality over the SSSR implementation phases and convergence with IFRS, the foregoing results give clear support to the hypotheses of the chapter. Specifically, there was a decrease in income-increasing accruals in the negotiation phase of SSSR (part of H5.1), decrease in working capital accrual quality, increase in income-increasing and decrease in income-decreasing discretionary accruals after IFRS convergence during the lock-in phase of SSSR (part of H5.2), and a decrease in working capital accrual quality as well as a decrease in income-increasing discretional accruals after completion of SSSR (part of H5.3).

In conclusion, during the sample period, given the Chinese special circumstances, namely non-tradable share reform since 2005, IFRS-converged CAS adoption in early 2007 and the nature of ownership, in this chapter, it was predicted that accrual quality decreased in the testing period due to the boosted incentives by the non-tradable share reform. The findings suggest that the working capital accruals quality declined in all three testing sub-periods. The discretional accruals quality seems to have improved since the |DA| was significantly decreased in the testing periods. The decreased |DA| was due to the decreases in income-increasing accruals in the first and the last testing periods, which supports the prediction of managing earnings downwards (H5.1 and H5.3) and increase in income-increasing and decrease in income-decreasing in the second testing period, which supports the prediction of managing earnings upwards (H5.2). In sum, the finding this study unconventionally suggest that discretional accruals quality declines even though the |DA| decrease.

Table 5.14: Summary of the chapter results

Period	Transition from	Transition to	IFRS-converged CAS?	Key results
2003-2006	Pre-SSSR	SSSR phase 1: negotiation period	No	• SD regression: est. coeff. on SSSR1= -0.017 • $\|DA^+\|$regression: est. coeff. SSSR1= -0.039**[*] • $\|DA^-\|$regression: est. coeff. on SSSR1 = -0.025
2005-2008	SSSR phase 1: negotiation period Pre-IFRE-converged CAS	SSSR phase 2: lock-in period Post-IFRS-converged CAS	Transition	• SD regression: est. coeff. on IFRS_SSSR2= -0.311*** • $\|DA^+\|$regression: est. coeff. on IFRS_SSSR2= 0.074*** • $\|DA^-\|$regression: est. coeff. on IFRS_SSSR2= -0.113**
2007-2010	SSSR phase 2: lock-in period	SSSR phase 3: free trading of shares	Yes	• SD regression: est. coeff. on SSSR3= 0.072*** • $\|DA^+\|$regression: est. coeff. on SSSR3= -0.038*[*] • $\|DA^-\|$regression: est. coeff. on SSSR3= 0.007

Results extracted from Tables 5.8-5.13. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

5.6 Conclusion

In this chapter, the working capital accrual model (Dechow and Dichev, 2002) and the modified Jones model (Jones, 1991; Dechow *et al.*, 1995) have been employed in order to investigate the accrual quality amongst the Chinese A-share listed firms over the period 2003-2010 (inclusive). Separate analyses were performed for Non-ST versus ST firms, and for Non-SOEs versus SOEs. The chapter has provided a non-conventional interpretation of the results on discretionary accrual investigations, given the incentives of earnings manipulation presented. In this regard, this study methodologically expands on the existing literature.

The results obtained provide various levels of support for the chapter hypotheses: the level of income-increasing accruals decreased in the negotiation phase of SSSR (consistent with H5.1); working capital accrual quality decreased, income-increasing discretionary accruals increased and income-decreasing accruals reduced in the lock-in phase of SSSR (strong support for H5.2); and working capital accrual quality decreased again, and the level of income-increasing accruals decreased after completion of SSSR (support for H8.3). Hence, reverting to the rationale underlying the hypotheses and extending for the results, the following can be concluded.

1. In the first phase of SSSR, the accrual quality decreases. Results suggest that there was indeed an incentive among Chinese A-share listed firms to drive down earnings, and that managers acted upon this incentive by reducing the extent of income-increasing discretionary accruals manipulation.

2. In the second phase of SSSR, coincident with adoption of IFRS-converged CAS, results are consistent with there having been an incentive among Chinese A-share listed firms to drive up earnings, and that managers acted upon this incentive by manipulating earnings upwards via both income-increasing and income-decreasing accruals manipulation – so reducing earnings/accruals quality was reduced.

3. In the third phase of SSSR, and after adoption of IFRS-converged CAS, findings are consistent with the existence of an incentive among Chinese A-share listed firms to drive down earnings, and that this incentive was acted upon through

managers reducing the extent of income-increasing discretionary accruals manipulation, and so reducing earnings/accruals quality.

Since the second testing period (2005-08) covers both transitions from the SSSR phase 2 to 3 and from pre-IFRS to post-IFRS convergence, it cannot be asserted that the results over the transition to the second (lock-in) phase were driven entirely by SSSR-related incentives and actions. There was the concurrent arrival of IFRS-converged CAS, which surely had an effect and the impact of IFRS convergence cannot be fully be discounted. The results from the second period, however, give strong support for H5.2, consistent across different sub-samples. This might suggest that IFRS convergence in China, rather than mitigating earnings management in pursuit of SSSR-related incentives, may actually have helped to facilitate it. But this is at most suggestive, and no firm claim may be made in this respect based on the empirical work of this study.

During the three testing periods, the corporate governance control variables did not show significance regarding the accrual quality, which suggests that there was no mitigating effect upon accrual manipulation from Big 4 audits, nor for the concentration level of controlling shareholders not even for the level of management ownership. The findings suggest a lack of strength/effectiveness of the auditing process and profession in the Chinese context as well as the possible shift of the ownership of shares seeming not to have happened. Thereafter, the dominant position of controlling shareholders joined by the managers may not have change following SSSR.

The empirical-statistical findings suggest that IFRS convergence and SSSR implementation together induced a decrease in accrual quality in China. The impact of SSSR-related management incentives seems to have outweighed any positive impact on accrual quality which might otherwise have resulted from the change of accounting standards. The changes in accounting standards or tradable share trading volume, in general, would appear to have had no substantive positive impact on accounting information quality. Interrelated changes, including minority investor protection, governance structure, i.e. controlling shareholder-oriented management approaches, separation of management and control, independence of supervisory board etc., together may have the potential to enhance the accounting information quality.

Chapter 6: Earnings persistence, predictability and smoothness

6.1 Introduction

This chapter investigates the earnings persistence property. As aforementioned in the previous literature review chapter, the persistence of earnings is conduced to the predictability of earnings. Higher earnings persistence indicates better earnings quality, with an enhanced ability of present earnings information to predict future earnings performance. In this chapter, earnings smoothness is extended to test whether the incentive related earnings smoothness led to a more earnings persistence in China's context. The objective of this chapter is to examine the change in earnings persistence, smoothness and predictability after China's most recent reforms of Split Share Structure Reform (SSSR) and IFRS-converged CAS adoption. A fixed panel data approach is used for the model estimations. This study is the first to compare and contrast the earnings quality properties between earnings persistence and earnings smoothness in the Chinese context.

The findings suggest that earnings persistence and earnings prediction reduced throughout all three phases of reforms' periods. For the first period, from 2003 to 2006, the impact of SSSR on its first stage is tested and the results show that the announcement of non-tradable share reform significantly reduced earnings persistence and earnings prediction quality; and the announcement of SSSR significantly increased earnings smoothness. The second period is from 2005 to 2008, with the impact of mandatory IFRS convergence in China on earnings quality being tested (SSSR from phase 1 to phase 2). The results show that both earnings persistence and prediction declined after IFRS convergence in 2007 and that there was no significant impact on earnings smoothness. Thereafter, this study concludes that earnings quality declined with regards to earnings persistence and predictability in the second testing period (2005-08). The third period is from 2007 to 2010 and tests the impact of SSSR transition from phase 2 to phase 3 on earnings persistence, predictability and smoothness by comparing pre- and post- non-tradable shares becoming practically tradable. The results show that earnings persistence and predictability significantly declined and there was a significant increase in earnings smoothness in this period, whilst earnings quality decreased in the final period.

From the earnings management incentive perspective (SSSR related incentives in three phases), to be able to conclude that increased earnings smoothness in the first phase and the last phase of the SSSR, managers have incentives to manage earnings downwards but also to make sure earnings staying positive, that increased earnings smoothness indicates a reduction in earnings quality. This study further investigates the change of small negative earnings under the impact of the reforms and finds there is no significant change on small negative earnings in the first and the last phases of the SSSR. increased small positive earnings with no significant change in small negative earnings suggests that the increasing in small positive earnings is induced by managing positive earnings downwards rather managing negative earnings upwards to avoid loss report under the conventional interpretation of earnings smoothing. Hence, it is concluded the increased earnings smoothness in the first and the last phases of the SSSR is to fulfil the management incentives of driving earnings downwards.

The overall findings suggest that earnings quality declined around the SSSR and IFRS convergence in China with regard to earnings persistence and predictability; earnings smoothness in the first and the last phase is consistent with the predication that managers have an incentive to drive down earnings. This study investigates both earnings persistence and earnings smoothness as properties of earnings quality and finds high level of earnings smoothness has negative relation with earnings persistence in a short time interval.

This chapter is organised as follows: the first section begins with the research objective and research question in section 6.2; there is hypothesis development in section 6.3; the research method and data collection are presented in section 6.4; section 6.5 provides the empirical results; and final, section 6.6 contains a summary of this chapter.

6.2 Research objective and question

Here, accounting quality is defined as earnings persistence, which implies the predictability of accounting information. Dechow *et al.* (2010) paper refers to earnings persistence as the first property of earnings quality from the aspect of information usefulness to equity investors. A more persistent earnings number yields better accounting information quality than a less persistent one under the assumption: a better persistence of earnings is more decision useful

for equity valuation (Sloan, 1996; Francis and Schipper, 1999; Francis *et al.*, 2005; Richardson *et al.*, 2006). There is little research that has investigated the association between IFRS adoption and earnings persistence (Artikis and Doukakis, 2010; Atwood *et al.*, 2011). Despite being an important property of earnings quality, there has no research undertaken with respect to earnings persistence or predictability under the impact of China's IFRS convergence or SSSR.

With regard to earnings smoothness and from an earnings management perspective, Capkun *et al.* (2013) investigated the effects of IFRS adoption on earnings smoothing between firms who voluntarily and mandatorily adopted IFRS. They suggested that earnings are smoother around IFRS adoption, however, they interpreted this as that the earnings smoothing indicates more earnings management after IFRS adoption due to increased flexibility and less clear guidance in the implementation of IFRS. Barth *et al.* (2008) study investigated earnings smoothness also from the earnings management perspective and it was found that earnings are less smooth after IFRS adoption. Paglietti (2010) investigated the impact of the EU's IFRS adoption on earnings quality. This paper documents that IFRS adoption is associated with an increase in earnings smoothness and thus, a subsequent increase in earnings management, which suggests that IFRS decreased earnings quality after the EU's mandatory adoption. There has been one study (Liu *et al.*, 2011) that considered earnings smoothness in China, with the researchers closely following the methodology of Barth (2008). They used a sample from 2005 to 2008 and found that the level of earnings smoothing after IFRS adoption was lower. Moreover, they documented that the lower level of earnings smooth indicated higher earnings quality after adoption. They did not mention the non-tradable share reform starting in 2005, whilst the majority of firms finished SSSR negotiation by 2007 and their sample of firms was also under the impact of the SSSR. For the current study the testing period is extended to 2003-2010 to consider further the possible impact of SSSR on earnings incentives related earnings smoothness.

In this study, the property of earnings smoothness and earnings persistence are distinguished. There has been limited study considering the possible relation between earnings persistence and earnings smoothness. Earnings smooth is investigated to test whether managers have incentives to manipulate earnings towards a small positive in order

to avoid loss reports, because these signals negative information of a firm's financial performance to the stock market. From the loss avoidance perspective, some researchers have investigated earnings smoothness and concluded that smoother earnings indicates higher earnings manipulation and thereafter, a lower accounting information quality (Leuz *et al.*, 2003; Lang *et al.*, 2006; Lang *et al.*, 2003; Ball and Shivakumar, 2005, 2006) . On the other hand, the property of earnings persistence has been considered from the earnings prediction perspective. A higher persistence of earnings implies a stable financial performance, which improves earnings predictability, hence, there being better earnings quality (Lee, 2010; Artikis and Doukakis, 2010; Dechow *et al.*, 2008; Li, 2008; Richardson *et al.*, 2005). Persistent earnings will benefit both firms and investors in the financial market through an increase in share returns, reduction in financial risk and lower cost of capital in the financial market (Watts and Zimmerman, 1986; Dechow *et al.*, 1996; Francis *et al.*, 2002; Schipper and Vincent, 2003; Graham *et al.*, 2005; Dichev *et al.*, 2013), which will help maintain its stability. Therefore, from a financial market information usefulness perspective, a firm with higher earnings persistence will impound future earnings in its current stock price to a larger extent than that of a lower earnings persistence firm. This implies that stock price reflect more information about future earnings when firms smooth their reported income (Collins *et al.*, 1994; Tucker and Zarowin, 2006). However, whether the incentive related earnings smoothness will lead to improved earnings persistence is unclear. A study by Kolozsvari and Macedo (2016) shows evidence that increased reported stability, which is denoted by the presence of income smoothing, decreases the sustainability of reported performance captured by persistence of earnings. By investigating the property of earnings persistence and earnings smoothness, this study also gives the opportunity to provide some evidence on the relation between earnings smoothness and earnings persistence.

The objective of this chapter is to examine how persistence, predictability and smoothness of earnings in China evolved against a backdrop of IFRS-converged CAS adoption and of the implementation SSSR. The research question addressed is:

What impact, if any, did IFRS convergence and SSSR have on earnings quality as measured by earnings persistence, earnings predictability and earnings smoothing?

6.3 Hypothesis development

Under principle-based IFRS-converged CAS, the reported earnings number is predicted to be more volatile due to the adoption of fair value measurement, which fluctuates according to the market value and is more volatile than historical cost measurement. At the beginning of IFRS adoption, the change of accounting rules would have directly influenced the earnings numbers, which can be detected in the adjusted sections from the old Chinese GAAP to the new CAS in 2007 annual report. Thereafter, it is anticipated that earnings were less persistent, with lower earnings predictability.

Furthermore, the financial market system plays a significant role when the accounting system is changed from rule-based to a principle-based, because a different financial reporting purpose is required under different capital- and credit-based financial market systems (Zysman, 1983; Franks and Mayer, 1997; Nobes, 1998). There has been no study with regard to the impact of SSSR on earnings persistence, predictability and smoothness. In terms of financial market system reform in China, when the principle-based accounting standard was adopted in 2007, the system was also undergoing a milestone and expecting to transform from a credit-based to a capital-based financial system (Firth *et al.*, 2010; Gillis, 2013). In this study, it is argued that China, as the largest emerging market, shares the same characteristics with other emerging countries e.g. attracting overseas capital, reducing the cost of preparing multiple sets of financial reports, lagged infrastructure, and has its own characteristics e.g. government intervention and control in the business circle. Hence, the reforms were unlikely to change China's emerging market characteristics in a short period and thus, the outcome of SSSR may not have transformed the Chinese financial market system into a capital-based one, like those of the US and UK. Take into consideration of the most likely unchanged fundamental of institutional background and firms' financial performance; moreover, with encouraged SSSR related incentives in financial markets (see Table 6.1), this study predicts that earnings persistence and earnings predictability are also declined under the impact of the SSSR.

Table 6.1: SSSR phases and related management incentive predictions

(Table 1.1 reproduced here for convenience)

SSSR		IFRS	
2004 and before	Pre-SSSR implementation	2006 and before	Pre-IFRS period
2005-2006	SSSR phase 1: negotiation period. Managers had the incentive to drive down share price, so that the local SOE hierarchy minimised the compensation it was obliged to pay to external shareholders		
2007-2008	SSSR phase 2: lock-in period: managers had incentives to drive up share prices, so that local SOE hierarchy received the maximum amount from sale of shares once the lock-in period ended	2007-2010	Post-IFRS-convergence: Possible influences: (i) EQ-increasing impact of IFRS in general, albeit not universal; (ii) EQ-decreasing under the impact of IFRS-convergence in China: weak legal enforcement, strong management incentives, lack of (minority) investors' protection, heavy government intervention, not a full adoption of IFRS
2009-2010	SSSR phase 3: post lock-in period and post-sale of SOE shares. Managers had the incentive to drive down share prices, so that the local SOE hierarchy could buy back shares at a lower price than that at which it sold them, thus creating a gain		

With regard to earnings smoothing, the incidence of small positive earnings may greater in periods where there is an incentive to engage in income-decreasing earnings management; and vice versa in periods where there is an incentive to engage in income-increasing earnings management. The notion here is to consider earnings smoothing downwards from above (but not down to/below zero) when there is an incentive to manage earnings downwards.

The hypotheses developed and discussed in earlier Chapters relate to a downwards earnings management incentive in the first phase of the SSSR, an upwards earnings management incentive in the second phase, and return to a downwards earnings

management incentive in the third phase. Accordingly, the hypotheses to be tested in this chapter are as follows:

H6.1: In the first phase of SSSR, earnings will have reduced persistence, reduced predictability and increased smoothness.

H6.2 In the second phase of SSSR, earnings will have reduced persistence, reduced predictability and reduced smoothness.

H6.3 In the third phase of SSSR, earnings will have reduced persistence, reduced predictability and increased smoothness.

6.4 Research method

As aforementioned, in this study both earnings persistence and earnings predictability are considered from an investors information usefulness perspective to compare and contrast whether the earnings were of better persistence and predictability under both reforms. The first subsection shows the earnings persistence and earnings predictability estimation models and this is followed by the estimation models for earnings smoothness investigation, which further allows for investigation into whether the earnings persistence experiences interaction with earnings smoothness.

6.4.1 Empirical models

6.4.1.1 Earnings persistence empirical models

This subsection presents the empirical investigation strategy for earnings persistence. Consistent with a large body of prior research (Freeman *et al.*, 1982; Sloan, 1996), a cross sectional time series analysis is employed to estimate the earnings persistence by regressing future period earnings on current period earnings and examining earnings smoothness by regression of the change of accruals on the change of cash flow from operations.

$$Earnings_{t+1} = \alpha + \beta Earnings_t + \varepsilon_t \qquad (6.1)$$

where, $Earnings_{t+1}$ is the future period operating income scaled by total assets at the begining of the year and $Earnings_t$ is the current period opearating income scaled by total assets at the begining of the year. Higher β indicates a better level of earnings persistence and thus, higher earnings quality.

Sloan (1996) further separated earnings into accrual and cash flow components, however, since there is no desire to compare the persistence between the two, this approach is not adopted in this chapter. Dechow *et al.* (2010) argued that the time-series model from Freeman *et al.* (1982) and Sloan (1996) neglect the impacts of firms' fundermental performance and accounting choice and that earnings persistence is likely to be driven by the business in which the firm operates and the accrual accounting choice. Motivated by Dechow *et al.* (2010) study, in this chapter, the aim is to test earnings persistence driven by accounting choices, stock market incentives and controls firm's fundermental performance.

In order to test the hypothese on the impact of IFRS and SSSR on earnings persistence, Model (6.1) is expanded as:

$$Earnings_{t+1} = \alpha + \beta_1 Earnings_t + \beta_2 DUM + \beta_3 DUM * Earnings_t + \sum_{k=4} \alpha_k Control_{k,i,t} + \varepsilon_t \quad (6.2)$$

DUM represents the dummy variables SSSR1 (model estimated over the period 2003-2006), IFRS_SSSR2 (model estimated from 2005-2008) and SSSR3 (model run for 2007-2010) in turn, whilst the explanatory and control variables have been previously defined in Table 5.1 and Table 6.1. Negative β_3 implies that IFRS and SSSR individually decreased earnings perisitence, thus indicating lower earnings quality.

The Arellano-Bond dynamic model is adopted to estimate the regression 6.2. Unlike static panel data models, Model 6.2 includes a lagged level of the dependent variable as the regressor. These lags are correlated with the idiosyncratic error, because a fixed effects or random effects panel data model cannot overcome the presence of endogenous lagged regressors.

6.4.1.2 Earnings predictability empirical models

$$Pred_{i,t} = \alpha_0 + \alpha_1 DUM + \sum_{k=2} \alpha_k Control_{k,i,t} + \varepsilon_{i,t} \qquad 6.3$$

$$Pred_{i,t} = \sqrt{\sigma^2 \hat{v}_{i,t}}$$

$Pred_{i,t}$ are calculated from model 6.1 by estimating standard deviation of the error variance (Kormendi and Lipe, 1987; Francis *et al.*, 2004; Dechow *et al.*, 2010). The control variables and DUM are as defined in previous section.

6.4.1.3 Earnings smoothness empirical models

Dechow *et al.* (2010) stated that earnings smooth random fluctuation in the timing of cash payments and receipts as well as smoothness of earnings, is an outcome of an accrual-based accounting system and assumed to improve decision usefulness. From the frequency of small positive reporting perspective, the regression from Barth *et al.* (2008) is adapted to test earnings smoothness further. Model (6.4) is designed to compare the small positive earnings before and after the reforms to examine whether firms were more likely to report a high smoothed earnings after the reforms, as measured by the correlation on small positive net income (SPOS), IFRS, and SSSR (Barth *et al.*, 2008; Paananen and Lin, 2009).

$$SPOS_{i,t} = \alpha + \beta_1 DUM + \sum_{k=2} \alpha_k Control_{k,i,t} + \varepsilon_t \qquad (6.4)$$

where, SPOS is a dummy variable that takes on 1, if net income scaled by total assets is between 0 and 0.01, otherwise SPOS = 0. All other variables are as previously defined in Chapter 5. A positive coefficient for β_1 in model 6.4 indicates that the reforms have improved the smoothness of earnings. The metric for SPOS is modified from Barth *et al.* (2008), which uses IFRS as a dependent variable. It is argued here that IFRS should be an explanatory variable rather than the dependent and thereafter, SPOS is adopted as the dependent variable. Furthermore, considering SPOS is a binary dependent variable, fixed effects logit estimation is utilised rather than OLS estimation as in Barth *et al.* (2008) study.

To test whether the increased smoothness is induced by driving earnings downwards to a small positive or by managing small negative upwards to a small positive; the decreased

smoothness is induced by driving earnings upwards to more positive or by driving earnings downwards to a negative. This study applies small negative earnings (SNEG) to model (6.4) as dependent. SNEG is a dummy variable that takes on 1, if net income scaled by total assets is between 0 and -0.01, otherwise SNEG = 0

6.4.2 Data collection

The data collection procedure is the same as in Chapter 5. The period of 2003 to 2010 is adopted for the above described estimations in this chapter.

Table 6.2: Definition of the chapter variables

EOA_{t+1}	the future period operating income scaled by total assets at the begining of the year
EOA_t	the future period operating income scaled by total assets at the begining of the year
SDPred	standard deviation of the error variance
SPOS	A dummy variable that takes on 1, if net income scaled by total assets is between 0 and 0.01, otherwise SPOS = 0
SNEG	A dummy variable that takes on 1, if net income scaled by total assets is between 0 and -0.01, otherwise SNEG = 0

6.5 Results

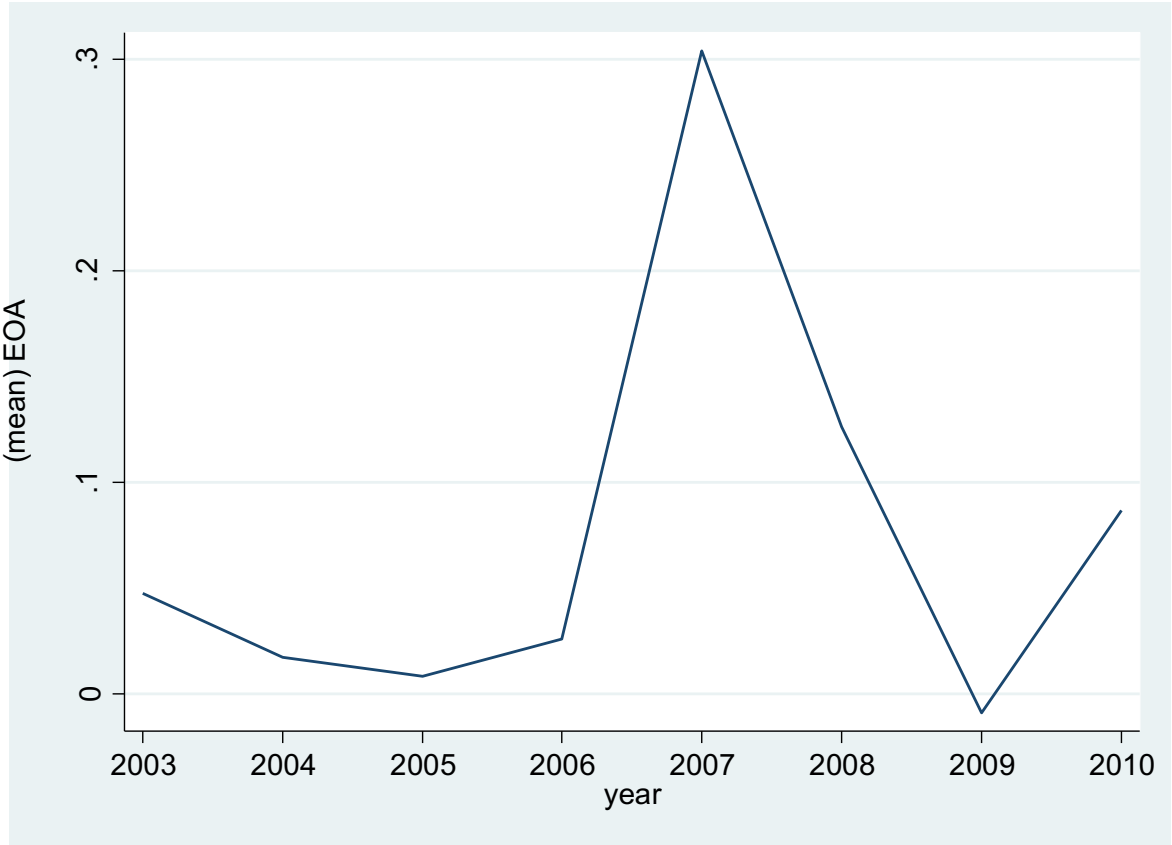
This section interprets and discusses the results with regard to earnings persistence, predictability and smoothness. The following three subsections, 6.5.1, 6.5.2 and 6.5.3, provide a comprehensive and detailed report on the data and results for both univariate and multivariate regressions. Subsequently, subsection 6.5.4 then highlights and discusses the key results.

6.5.1 The pattern of earnings

Figure 6.1 shows the different levels of persistence of earnings over the period 2003-2010. It seems that earnings persistence became less so after 2006. The persistence breaks at 2007 with a dramatic increase of EOA, then falls to its lowest in 2009. The EOA drops mildly from pre-SSSR (2003-2004) to phase 1 of SSSR in 2005 and follows a small increase in 2006. After phase 1 of SSSR, EOA climbs up noticeably in 2007 and reverses downwards in 2008, however, EOA in 2008 is still much higher than in previous years (exclude 2007). In phase 3, the EOA drops to its lowest point in 2009 and starts to reverse upwards in 2010.

The changes of EOA in the testing period are consistent with the hypothesis that, firstly, there was an incentive to drive down earnings during the phase 1: negotiation period; then, there was an incentive to drive up earnings at phase 2: lock in period; finally, there was an incentive to drive down the earnings at phase 3 after lock-in period. Figure 6.1 shows earnings were less persistent after 2006. After 2006, firstly, the mandatory adoption of IFRS-converged CAS was on 1st January 2007, whilst secondly, SSSR transited to phase 2 of the lock-in period. If SSSR encouraged management incentives to manage earnings towards benefiting non-tradable/controlling shareholders, then IFRS adoption seems to have assisted managers' objective. Both reforms increased the instability of earnings reports.

Figure 6.1: The pattern of earnings among Chinese A-share firms



6.5.2 Univariate analysis

Table 6.3 shows the summary statistics of the variables used in earnings persistence, earnings predictability and earnings smoothness estimations. Control variables' summary statistics were reviewed in the previous chapter: Table 5.6. Table 6.1 recalls Table 1.1 and lays out the

setting of the different phases in SSSR. Phase 1: negotiation period is from 2005 to 2006; phase 2: lock in period is from 2007 to 2008; and phase 3: free trading of previously untradeable shares.

From the pre-SSSR period to phase 1, the mean of EOA decreases, however, insignificantly from pre-SSSR (0.022) to the first phase of SSSR (0.021). Then the mean of EOA increases significantly (0.031*) from 0.021 in the first phase of SSSR to 0.052 in the second phase. Finally, EOA decreases from 0.052 to 0.040, significantly (0.012*). The findings are consistent with Figure 6.1 and support the hypotheses that managers had an incentive to drive down earnings in the first phase of SSSR; managers had an incentive to drive up earnings in the second phase of SSSR; and finally, that managers had an inventive to drive down earnings in the final phase of SSSR. The EOA experienced a dramatic increase straight after IFRS adoption, while SSSR transited to the second phase.

Furthermore, the predictability of earnings (SDPred) is investigated by estimating the standard deviation of errors from Model 6.1. The mean of SDPred increases from 0.034 in pre-SSSR to 0.059 in the first phase, significantly (0.045[*]); the mean of SDPred decreases from 0.059 to 0.056 from the first phase to the second phase, insignificantly; and the mean of SDPred increases from 0.056 to 0.063, insignificantly. The findings suggest that earnings predictability decreased in the first phase, whilst this was insignificant in the second and third phases.

Moreover, the mean of small positive earnings (SPOS) increases from 0.143 pre -SSSR to 0.146 in phase 1, insignificantly; then the mean of SPOS further declines from phase 1 (0.146) to phase 2 (0.105), significantly (0.041***); and finally, the mean of SPOS increases from phase 2 (0.105) to phase 3 (0.119), but insignificantly. The evidence of the change of means in the transition period from the old Chinese GAAP (phase 1 of the SSSR) to the new IFRS-converged CAS (phase 2 of the SSSR) is consistent with the hypotheses that earnings smoothness increases when there exists earnings downward management incentives and it decreases when earnings upwards management incentives exist[55].

[55] See Appendix 6.1

Given the support of the univariate data with expectations, it appears that the change of accounting-based earnings performance related directly to the reforms rather than a fundamental change of firms' financial status over the testing period. Now, the focus is turned to testing the association of the reforms with earnings persistence, earnings predictability and earnings smoothness by estimating within a multivariate framework.

Table 6.3: Chapter summary statistics

	Pre SSSR (2003-04)				Phase 1 (2005-06)				Phase 2 (2007-08)				Phase 3 (2009-10)			
	Mean	**Median**	**St Dev**	**Obs**	**Mean**	**Median**	**St Dev**	**Obs**	**Mean**	**Median**	**St Dev**	**Obs.**	**Mean**	**Median**	**St Dev**	**Obs**
EOA	0.022	0.029	0.103	866	0.021	0.025	0.104	1880	0.052	0.037	0.262	2055	0.040	0.036	0.138	1122
SDPred	0.034	0.011	0.078	866	0.059	0.018	0.273	1840	0.056	0.017	0.222	2036	0.063	0.016	0.326	1115
SPOS	0.143	0	0.351	886	0.146	0	0.350	1880	0.105	0	0.311	2055	0.119	0	0.324	1122

This table presents summary statistics of the variables used in the earnings persistence analyses (mean, 50 percentile, standard deviation and number of observations. Variables are as previous defined in Table 5.2 and Table 6.2. The summary statistics of the control variables are presented in Table 5.6.

6.5.3 Regression results-detailed report

This subsection begins with a comprehensive report on the results, whilst the next one highlights and discusses the key ones.

To test the first hypothesis, 6.1, models 6.2, 6.3 and 6.4 are executed with DUM taken as SSSR1 and introducing the interaction term SSSR1*EOA in model 6.2. To test hypothesis 6.2, models 6.2, 6.3 and 6.4 are run with DUM taken as IFRS_SSSR2 and introducing the interaction term IFRS_SSSR2*EOA in model 6.2. To test hypothesis 6.3, estimates models 6.2, 6.3 and 6.4 are estimated with DUM taken as SSSR3 and introducing the interaction term SSSR3*EOA in model 6.2. The three models are adopted to test whether earnings persistence, earnings predictability and earnings smoothness improved under China's IFRS-converged CAS adoption and the different phases of SSSR. To test whether specific firm factors namely ST and SOE had impacts on earnings persistence, the regression are further run for ST, non-ST, SOE and non-SOE to investigate whether the reforms impacted on earnings persistence, earnings predictability and earnings smoothness differently across these.

Persistence

The results from table 6.4 are generated from Arellano-Bond GMM estimation from model 6.2, since the dependent variable is a lagged variable, as explained above. Firstly, it emerges that there is first order autocorrelation (p-value<0.05) and no second order (p-value>0.10) in the model. Furthermore, the result rejects the null hypothesis: the over identifying restrictions are valid (p-value>0.10). Thereafter, the model satisfies the Arellano-Bond model estimation and the results are shown in Table 6.4. Table 6.4 shows the change of earnings persistence from pre-SSSR to the first phase of SSSR. The results reveal that EOA1 is significantly negatively associated with the interaction term EOA*SSSR1 (-0.999***), which indicates that the announcement of SSSR significantly reduced earnings persistence. To test the further firm specific factors, Table 6.4 presents the findings of how SSSR1 has impacted on earnings persistence with regard to whether the firms are ST or non-ST and SOE or non-SOE. Consistent with the overall findings in this period, it can be seen that earnings persistence declined regardless of whether the firms were ST or Non-ST and whether they

were SOEs or Non-SOEs, however, this was insignificant SOEs. The findings suggest that the announcement of SSSR was associated with lower earnings persistence.

Table 6.4: Estimations of earnings persistence (Model 6.2): firm years 2003-06

Dependent Var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
L.EOA1	0.531	-0.174*	0.748	0.996**	0.261
	(0.427)	(0.089)	(0.573)	(0.473)	(0.192)
SSSR1	0.038***	0.014***	0.038	0.061***	0.018***
	(0.010)	(0.003)	(0.044)	(0.016)	(0.004)
SSSR1*EOA	-0.999***	-0.156**	-1.482***	-1.552***	-0.167
	(0.376)	(0.074)	(0.530)	(0.442)	(0.114)
SIZE	0.031	-0.006	-0.279	-0.029	-0.031
	(0.064)	(0.022)	(0.179)	(0.142)	(0.029)
LEV	-0.001**	0.003	-0.001	-0.001	0.001
	(0.000)	(0.004)	(0.001)	(0.001)	(0.001)
CR	-0.003	-0.001	0.026	-0.007	-0.003
	(0.005)	(0.002)	(0.088)	(0.011)	(0.003)
INV	0.002	0.004***	0.005	0.007**	-0.003
	(0.003)	(0.001)	(0.009)	(0.004)	(0.012)
NOI	0.361	-0.053	0.055	-0.098	0.787
	(0.283)	(0.108)	(0.799)	(0.378)	(0.547)
PROFIT	0.022	-0.014	0.164*	0.024	-0.022
	(0.014)	(0.009)	(0.093)	(0.036)	(0.018)
CFO	-0.040	0.050**	0.077	-0.075	0.072**
	(0.090)	(0.020)	(0.170)	(0.129)	(0.033)
MOWN	-0.002	0.002	-0.004	0.015	-0.008
	(0.006)	(0.005)	(0.028)	(0.020)	(0.006)
CONCEN	-0.000	-0.000*	0.000	-0.001	-0.001*
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
AUDIT	0.021	0.029	-3.934**	0.007	0.000
	(0.046)	(0.019)	(1.808)	(0.018)	(0.028)
Constant	-0.628	0.172	5.797	0.455	0.811
	(1.361)	(0.436)	(3.818)	(2.947)	(0.602)
Observations	1,010	798	212	342	668

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Table 6.5 shows the association of IFRS adoption on earnings persistence, which also indicates the change of earnings persistence from phase one to phase two of SSSR. The results reveal that EOA1 is significantly negatively associated with the interaction term

EOA*IFRS_SSSR2 (-0.303***), which indicates that earnings persistence significantly declined after China's IFRS convergence (SSSR moves from its first phase to the second). With regard to ST, Non-ST, SOEs or Non-SOEs, Table 6.5 shows that there is significant negative association between the interaction term IFRS_SSSR2*EOA and EOA1, which indicate that earnings persistence significantly declined regardless whether the firms were ST, Non-ST, SOEs or Non-SOEs.

Table 6.5: Estimations of earnings persistence (Model 6.2): firm years 2005-08

	(1)	(2)	(3)	(4)	(5)
Dependent var:	All	Non-ST	ST	Non-SOE	SOE
EOA	-0.303***	-0.265***	-0.551***	-0.308***	-0.018
	(0.096)	(0.054)	(0.174)	(0.098)	(0.100)
IFRS_SSSR2	0.025***	0.003	-0.005	0.033*	0.005
	(0.008)	(0.004)	(0.030)	(0.018)	(0.006)
IFRS_SSSR2*EOA	-0.470***	-0.136**	-1.062***	-0.262*	-0.481***
	(0.102)	(0.056)	(0.222)	(0.154)	(0.093)
SIZE	-0.061***	-0.046***	-0.163**	-0.107**	-0.055***
	(0.016)	(0.009)	(0.069)	(0.045)	(0.010)
LEV	-0.001***	0.007***	-0.000**	-0.001***	0.000
	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)
CR	-0.001	0.001	-0.049*	-0.001	-0.003*
	(0.003)	(0.002)	(0.030)	(0.004)	(0.002)
INV	0.014***	0.002*	0.007	0.014***	0.009
	(0.004)	(0.001)	(0.006)	(0.003)	(0.007)
NOI	-1.290***	-0.014	-0.315	-1.686***	-0.192***
	(0.130)	(0.068)	(0.237)	(0.166)	(0.065)
PROFIT	0.012	-0.024***	0.101***	0.008	-0.009
	(0.011)	(0.005)	(0.022)	(0.021)	(0.009)
CFO	0.105***	0.053***	0.304***	0.114**	0.086***
	(0.035)	(0.011)	(0.087)	(0.056)	(0.023)
MOWN	0.000	0.005**	-0.018	0.005	-0.004
	(0.005)	(0.002)	(0.016)	(0.008)	(0.003)
CONCEN	-0.001*	-0.000**	-0.001	-0.001	-0.001***
	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)
AUDIT	0.014	0.028***	-0.056	0.016	0.010
	(0.016)	(0.009)	(0.103)	(0.055)	(0.016)
Constant	1.363***	1.009***	3.637**	2.276**	1.329***
	(0.346)	(0.196)	(1.468)	(0.919)	(0.222)
Observations	2,082	1,685	397	741	1,341

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2 = 0 for 2005-2006; 1 for 2007-2008. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Table 6.6 reveals that EOA1 is significantly negatively correlated with the interaction term EOA*SSSR3 (-0.340***), which indicates that unlock of the non-tradable shares significantly reduced earnings persistence overall. Table 6.6 further shows that EOA1 is negatively associated with SSSR3*EOA amongst Non-ST, SOEs and Non-SOEs, however, this is insignificant amongst STs. The findings suggest that earnings persistence declined after the non-tradable shares became practically tradable amongst Non-ST, SOEs and non-SOEs.

Table 6.6: Estimations of earnings persistence (Model 6.2): firm years 2007-10

	(1)	(2)	(3)	(4)	(5)
Dependent var:	All	Non-ST	ST	SOE	Non-SOE
EOA	-0.129**	-0.117***	-0.205	-0.174***	-0.098
	(0.059)	(0.029)	(0.206)	(0.044)	(0.069)
SSSR3	0.044***	0.035***	0.087**	0.042***	0.043***
	(0.006)	(0.004)	(0.038)	(0.006)	(0.009)
SSSR3*EOA	-0.340***	-0.249***	0.279	-0.348***	-0.316**
	(0.085)	(0.035)	(0.423)	(0.047)	(0.145)
SIZE	-0.081***	-0.064***	-0.151	-0.083***	-0.081**
	(0.026)	(0.009)	(0.128)	(0.023)	(0.032)
LEV	-0.000***	0.008*	-0.000***	-0.000***	0.000
	(0.000)	(0.004)	(0.000)	(0.000)	(0.001)
CR	0.002	0.002***	-0.003	0.002***	-0.005
	(0.001)	(0.001)	(0.031)	(0.001)	(0.005)
INV	0.005	0.007	-0.271	0.008	0.007
	(0.009)	(0.006)	(0.184)	(0.007)	(0.016)
NOI	-0.189***	-0.047	-0.188	0.100*	-0.291***
	(0.055)	(0.075)	(0.186)	(0.059)	(0.072)
PROFIT	-0.035***	-0.040***	-0.012	-0.024**	-0.037***
	(0.010)	(0.008)	(0.032)	(0.012)	(0.013)
CFO	0.001	0.021	-0.091	0.008	0.015
	(0.029)	(0.017)	(0.175)	(0.036)	(0.038)
MOWN	-0.002	-0.000	0.013	-0.003	-0.001
	(0.003)	(0.002)	(0.015)	(0.003)	(0.005)
CONCEN	0.000	0.001	0.001	-0.000	0.002
	(0.001)	(0.000)	(0.005)	(0.000)	(0.001)
AUDIT	0.010	0.022**	0.028	-0.012	0.016
	(0.012)	(0.010)	(0.110)	(0.010)	(0.025)
Constant	1.829***	1.438***	3.066	1.873***	1.778***
	(0.539)	(0.187)	(2.628)	(0.477)	(0.670)
Observations	1,172	994	178	497	675

Based on firm-year observations 2007-2010 from Chinese listed firms. SSSR3 = 0 for 2007-2008; 1 for 2009-2010. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

The evidence implies that earnings were of less persistence after both IFRS-converged CAS adoption and SSSR. This was throughout the three phases of SSSR: the first phase of negotiation, the second phase of lock-in period and the third phase of unlocking. The second testing period from the first to the second phase of SSSR covers the transition from pre- to post-IFRS-converged CAS adoption. The decline in earnings persistence around both accounting standards and financial market reforms may be caused by the change in the accounting method and reporting incentive regarding these two reforms. The findings are consistent with the above proposed hypotheses that earnings persistence declined in all three testing periods.

Predictability

Having probed earnings persistence, earnings predictability is probed. Tables 6.7 - 6.9 show that earnings predictability declined after both reforms. The standard deviation of the error variance from model 6.1 is estimated as the indicator of earnings predictability (Lipe 1990). A positive correlation α_1 in model 6.3 implies increased SD and decline in predictability, whilst a negative α_1 implies the opposite. Table 6.7 reveals that SSSR1 is significantly positively correlated with SDPred (0.059***), which indicates that the announcement of SSSR significantly enlarged the SD of error variance and thus, significantly reduced earnings predictability. From column 2 to column 4, whether the impact of SSSR announcement was various amongst ST vs Non-ST and SOE vs Non-SOE can be identified. In comparing of impact on ST and Non-ST, column 2 shows that the announcement of SSSR has significantly enlarged the SD of error variance for non-ST firms (0.009***), whilst the correlation is insignificant for ST firms (-0.002), which suggests that the announcement of SSSR reduced the earnings predictability of non-ST firms, but had no significant impact on ST firms. When comparing SOEs and Non-SOEs, the announcement of SSSR significantly reduced both SOEs and Non-SOEs earnings predictability.

Table 6.7: Estimations of earnings predictability (Model 6.3): firm years 2003-06

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
SSSR1	0.059***	0.009***	-0.002	0.114***	0.023***
	(0.013)	(0.003)	(0.055)	(0.034)	(0.007)
SIZE	-0.430***	0.036***	-1.118***	-0.962***	-0.014
	(0.040)	(0.010)	(0.132)	(0.091)	(0.022)
LEV	-0.000	-0.005**	-0.001	-0.000	-0.000
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
CR	-0.025***	0.003*	-0.129*	-0.054***	0.000
	(0.008)	(0.002)	(0.068)	(0.018)	(0.005)
INV	0.010	-0.002	0.019	0.018	-0.005
	(0.010)	(0.002)	(0.031)	(0.015)	(0.025)
NOI	-1.016	0.212	-2.620	-1.887*	0.663
	(0.621)	(0.161)	(1.844)	(1.073)	(0.527)
PROFIT	0.042*	0.030***	0.056	0.136**	-0.003
	(0.024)	(0.007)	(0.066)	(0.062)	(0.012)
CFO	-0.153***	0.002	0.057	-0.042	-0.086*
	(0.057)	(0.020)	(0.139)	(0.101)	(0.049)
MOWN	0.035**	0.003	0.125*	0.069	0.015*
	(0.016)	(0.003)	(0.067)	(0.046)	(0.008)
CONCEN	-0.001	-0.000	-0.002	-0.004*	-0.000
	(0.001)	(0.000)	(0.004)	(0.003)	(0.000)
AUDIT	-0.011	0.016	-0.304	0.084	0.008
	(0.091)	(0.018)	(0.529)	(0.398)	(0.039)
Constant	8.852***	-0.801***	22.521***	19.519***	0.183
	(0.849)	(0.208)	(2.774)	(1.924)	(0.466)
Observations	1,644	1,292	352	570	1,074
R-squared	0.129	0.095	0.306	0.281	0.034

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Table 6.8 presents the results of the change in earnings predictability from the first to the second phase of SSSR. This period is from 2005 to 2008: IFRS_SSSR2 is zero from 2005 to 2006 (phase 1 of SSSR) and IFRS_SSSR2 is one from 2007 to 2008 (phase 2 of SSSR). The findings show that IFRS adoption enlarges the SD of error variance (0.032***), which suggests that earnings predictability significantly declined in the second testing period. In comparing the impact of IFRS adoption on ST or Non-ST and SOEs or Non-SOEs, column 2 to column 5 reveal that earnings predictability has significantly reduced amongst all four different

category of firms, which indicates that earnings predictability was significantly reduced after IFRS convergence and SSSR negotiation.

Table 6.8: Estimations of earnings predictability (Model 6.3): firm years 2005-08

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
IFRS_SSSR2	0.032***	0.008***	0.066*	0.037**	0.030***
	(0.008)	(0.003)	(0.036)	(0.015)	(0.008)
SIZE	-0.097***	-0.039***	-0.249***	-0.138***	-0.079***
	(0.015)	(0.005)	(0.073)	(0.031)	(0.015)
LEV	-0.000	-0.012***	-0.000	-0.000	-0.000
	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)
CR	-0.003	-0.003***	-0.005	-0.003	-0.005
	(0.003)	(0.001)	(0.036)	(0.004)	(0.004)
INV	0.007	0.001	0.219	0.003	0.036*
	(0.007)	(0.002)	(0.135)	(0.009)	(0.019)
NOI	-0.370***	-0.158*	-0.520***	-0.424***	-0.359***
	(0.033)	(0.082)	(0.097)	(0.055)	(0.053)
PROFIT	0.014	0.016***	0.003	0.025	0.006
	(0.012)	(0.005)	(0.042)	(0.026)	(0.013)
CFO	-0.111***	-0.011	-0.146	-0.178***	0.047
	(0.036)	(0.016)	(0.109)	(0.054)	(0.052)
MOWN	0.008	0.001	0.030	0.008	0.011*
	(0.005)	(0.002)	(0.025)	(0.010)	(0.006)
CONCEN	-0.000	-0.000**	0.001	-0.000	0.000
	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)
AUDIT	0.008	-0.012	0.048	0.048	-0.006
	(0.043)	(0.015)	(0.185)	(0.104)	(0.042)
Constant	2.032***	0.888***	5.018***	2.859***	1.626***
	(0.304)	(0.108)	(1.495)	(0.636)	(0.328)
Observations	2,371	1,939	432	928	1,443
R-squared	0.083	0.110	0.115	0.115	0.062

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2 = 0 for 2005-2006; 1 for 2007-2008. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Table 6.9 reveals whether the unlocking of non-tradable shares has an impact on earnings predictability. This testing period covers from 2007 to 2010 after IFRS-adoption. SSSR3 equals to 0 from 2007 to 2008, whilst it equals to 1 from 2009-2010. Column 1 shows that SSSR3 is positively associated with SDPred (0.040***), which indicates that the unlocking of non-tradable shares significantly reduced earnings predictability. As for ST and Non-ST

firms, column 2 and column 3 presents that earnings predictability of these significantly declined after shares became practically tradable (0.010* and 0.136*). Column 4 and column 5 reveal that earnings predictability of non-SOEs declined (0.071***) after non-tradable shares became tradable and there is no significant impact of shares becoming tradable on the predictability of SOEs (0.018).

Table 6.9: Estimations of earnings predictability (Model 6.3): firm years 2007-10

	(1)	(2)	(3)	(4)	(5)
Dependent var:	All	Non-ST	ST	Non-SOE	SOE
SSSR3	0.040***	0.010*	0.136*	0.071***	0.018
	(0.011)	(0.005)	(0.070)	(0.023)	(0.011)
SIZE	-0.103***	-0.013	-0.221	-0.152**	-0.079***
	(0.030)	(0.015)	(0.150)	(0.072)	(0.026)
LEV	-0.000	-0.024***	-0.000	-0.000	-0.000
	(0.000)	(0.005)	(0.000)	(0.000)	(0.001)
CR	-0.002	-0.003**	0.092	-0.002	0.000
	(0.004)	(0.002)	(0.083)	(0.006)	(0.007)
INV	0.017	0.000	0.176	0.023	0.016
	(0.029)	(0.013)	(0.348)	(0.064)	(0.025)
NOI	-0.243***	0.047	-0.272	-0.159	-0.265***
	(0.093)	(0.174)	(0.248)	(0.368)	(0.070)
PROFIT	0.015	0.018*	-0.003	-0.006	0.025
	(0.021)	(0.010)	(0.092)	(0.045)	(0.019)
CFO	-0.071	-0.057**	-0.011	-0.204	0.017
	(0.066)	(0.028)	(0.395)	(0.134)	(0.061)
MOWN	0.005	-0.000	0.011	0.000	0.008
	(0.010)	(0.004)	(0.052)	(0.018)	(0.010)
CONCEN	0.001	0.000	0.006	0.001	0.000
	(0.001)	(0.001)	(0.008)	(0.002)	(0.002)
AUDIT	0.015	-0.005	0.075	0.040	0.010
	(0.070)	(0.029)	(0.447)	(0.148)	(0.063)
Constant	2.169***	0.336	4.331	3.240**	1.645***
	(0.644)	(0.310)	(3.104)	(1.506)	(0.559)
Observations	1,931	1,631	300	855	1,076
R-squared	0.023	0.046	0.052	0.028	0.036

Based on firm-year observations 2007-2010 from Chinese listed firms. SSSR3 = 0 for 2007-2008; 1 for 2009-2010. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

From Tables 6.7-6.9, it is concluded that earnings predictability significantly declined in the three testing periods. The announcement of SSSR had a more significant negative

impact on the predictability of Non-ST and SOE in the pre-IFRS period. Regarding IFRS adoption and after this, both reforms had a significant negative impact on the predictability of STs and non-SOEs. The findings in this section support the hypothesis that earnings predictability declined in all three testing periods.

Smoothness

Tables 6.10-6.12 shows the regression results of model 6.4, which aimed to test the frequency of small positive earnings reporting under the impact of IFRS-converged CAS adoption and SSSR.

Table 6.10: Estimations of earnings smoothness (Model 6.4): firm years 2003-06

	(1)	(2)	(3)	(4)	(5)
Dependent var:	All	Non-ST	ST	Non-SOE	SOE
SSSR1	1.205***	0.864**	2.329**	0.908	1.196***
	(0.314)	(0.346)	(1.107)	(0.654)	(0.363)
SIZE	-1.333	-2.010	-3.156	-4.339	-0.923
	(1.089)	(1.687)	(3.858)	(3.355)	(1.186)
LEV	-0.034	0.717	-0.043	-0.173	-0.037
	(0.047)	(0.661)	(0.070)	(0.859)	(0.047)
CR	-0.428	-0.408	0.085	-2.044	-0.374
	(0.410)	(0.456)	(1.671)	(2.090)	(0.437)
INV	-0.080	-0.427	-1.876	-0.554	-0.580
	(0.273)	(0.823)	(2.668)	(1.114)	(0.854)
NOI	26.420	-22.192	233.570	76.512	23.831
	(23.582)	(31.906)	(285.962)	(114.831)	(25.094)
PROFIT	19.398	18.790	22.369	20.683	19.013
	(1,153.062)	(1,063.767)	(3,956.422)	(2,010.017)	(1,163.768)
CFO	-6.217**	-5.437*	-5.678	-6.652	-6.487**
	(2.694)	(3.019)	(8.919)	(6.180)	(3.232)
MOWN	0.176	0.027	-0.485	1.386	0.072
	(0.380)	(0.404)	(2.429)	(1.182)	(0.425)
CONCEN	0.081***	0.069**	0.207*	0.043	0.082***
	(0.025)	(0.027)	(0.113)	(0.069)	(0.026)
AUDIT	-0.934	-0.786	-3.859		-1.430
	(6,280.682)	(6,216.835)	(43,052.195)		(4,027.215)
Observations	421	271	150	117	304

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance

The increased small positive earnings reported is a result of managing earnings downwards. Hence, given the hypotheses and findings in the previous sections, finding more small positive earnings reports with regard to the first and third testing periods with an income-decreasing management incentive is anticipated. Whilst less small positive earnings reports in second testing period are expected, which is consistent with income-increasing earnings management incentive.

Table 6.10, from column 1 to column 5, reveals that there is significant and positive correlation coefficient between SSSR1 and SPOS. The results indicate that the announcement of SSSR significantly improved the frequency of reporting small positive earnings.

Table 6.11 shows that the impact of IFRS convergence on SPOS is insignificantly negative (-0.292). Under different firm specific characteristics, IFRS convergence significantly reduced the frequency of small positive earnings reports in SOEs (-0.186**), however, this had no significant impact on ST, Non-ST and Non-SOEs. This finding is consistent with the prediction that earnings became less smooth under the income-increasing incentive, especially in SOEs.

Table 6.11: Estimations of earnings smoothness (Model 6.4): firm years 2005-08

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
IFRS_SSSR2	-0.292	-0.028	-0.566	-0.402	-0.440*
	(0.215)	(0.254)	(0.651)	(0.483)	(0.260)
SIZE	0.003	-1.132*	1.617	2.320	-0.020
	(0.511)	(0.659)	(1.371)	(1.623)	(0.568)
LEV	0.011	0.994***	0.006	0.337	0.016
	(0.051)	(0.331)	(0.006)	(0.385)	(0.051)
CR	0.170	0.503**	-1.594**	0.304	0.153
	(0.146)	(0.231)	(0.705)	(0.335)	(0.158)
INV	-0.446	0.094	-3.650*	-3.029	-0.302
	(0.618)	(0.707)	(1.989)	(1.918)	(0.690)
NOI	0.232	-20.191	12.175	53.160*	-5.010
	(4.799)	(16.728)	(7.878)	(28.090)	(6.791)
PROFIT	29.822	29.710	21.709	19.680	33.967
	(995.386)	(1,497.686)	(2,681.930)	(2,282.505)	(2,530.041)
CFO	-1.770	-2.292	-0.571	-1.941	-1.640
	(1.442)	(1.963)	(2.366)	(2.753)	(1.845)
MOWN	0.151	0.306	-0.966*	0.438	0.091
	(0.193)	(0.231)	(0.560)	(0.397)	(0.233)
CONCEN	0.049***	0.051***	0.075*	-0.012	0.060***
	(0.016)	(0.019)	(0.045)	(0.037)	(0.019)
AUDIT	-14.892	-15.578	5.742	-20.350	-16.833
	(701.280)	(1,056.201)	(27,283.889)	(18,182.600)	(1,785.090)
Observations	764	560	204	215	549

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2 = 0 for 2005-2006; 1 for 2007-2008. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance

Table 6.12 shows that the SSSR3 is positively and significantly associated with SPOS, which indicates that the change from the second phase to the third phase of SSSR led to significantly improved frequency of reporting SPO overall. Furthermore, the positive and significance association remained in Non-ST firms, Non-SOEs and SOEs.

The results from Tables 6.10-6.12 are consistent with the predication that there was increased earnings smoothness in the first and the third testing period when there existed a downward earnings management incentive. Moreover, there was decreased earnings smoothness (SOEs) in the second testing period when there was an upward earnings management incentive.

Table 6.12: Estimations of earnings smoothness (Model 6.4): firm years 2007-10

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
SSSR3	0.725***	0.728**	0.408	0.903*	0.621*
	(0.269)	(0.285)	(0.876)	(0.542)	(0.333)
SIZE	-2.087**	-1.657*	-0.391	-2.868	-2.046*
	(0.903)	(0.913)	(2.112)	(2.560)	(1.044)
LEV	0.802**	0.664*	0.385	3.819**	0.738**
	(0.360)	(0.364)	(0.330)	(1.648)	(0.371)
CR	-0.020	-0.022	6.972**	-0.027	0.145
	(0.073)	(0.073)	(3.146)	(0.131)	(0.200)
INV	0.414	0.489	-8.295	-2.629	-0.108
	(1.030)	(1.051)	(7.659)	(2.928)	(1.384)
NOI	1.808	0.485	65.423**	78.909*	0.815
	(6.118)	(6.304)	(27.603)	(44.665)	(5.991)
PROFIT	21.738	18.930		24.954	21.280
	(818.058)	(1,217.177)		(2,668.071)	(1,022.528)
CFO	-0.172	-0.619	5.957*	-3.068	-0.298
	(1.480)	(1.638)	(3.554)	(3.662)	(1.716)
MOWN	0.280	0.265	0.892	-0.104	0.491
	(0.361)	(0.359)	(0.830)	(0.742)	(0.481)
CONCEN	-0.015	-0.018	-0.086	0.040	-0.028
	(0.027)	(0.029)	(0.086)	(0.055)	(0.034)
AUDIT	-1.032	-1.139		-19.508	-0.901
	(1.190)	(1.195)		(29,750.146)	(1.255)
Observations	426	337	89	146	280

Based on firm-year observations 2007-2010 from Chinese listed firms. SSSR3 = 0 for 2007-2008; 1 for 2009-2010. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance

6.5.4 Summary of the principal results

This subsection summarises the key findings of this chapter, as collated into Table 6.13. In this chapter, it has been hypothesised that: in the negotiation phase of SSSR, the level of earnings persistence and earnings predictability decreased and earnings smoothness increased, whilst the association between SSSR1*EOA and EOA_{t+1} decreased, the association between SSSR1 and SDPred increased and the association between SSSR1 and SPOS increased (abstracted from H6.1). In the lock-in phase of SSSR, the level of earnings persistence, earnings predictability and earnings smoothness decreased, whilst the association between IFRS_SSSR2*EOA and EOA_{t+1} decreased, the association between IFRS_SSSR2 and SDPred

increased and that between IFRS_SSSR2 and SPOS decreased (abstracted from H6.2). After completion of SSSR, the level of earnings persistence and earnings predictability decreased and earnings smoothness increased, whilst the association between SSSR3*EOA and EOA_{t+1} decreased. The association between SSSR3 and SDPred increased and the association between SSSR3 and SPOS increased (abstracted from H6.3). Consistent with and supporting hypotheses H6.1, H6.2 and H6.3 of this chapter, the principal multivariate regression estimation results show the following

Pre-SSSR to SSSR phase 1: 2003-2006

In the 2003-2006 testing period, there was no impact from the change of accounting standards: IFRS-converged CAS came into force with effect from 2007. Over this period, it has been found that earnings persistence significantly decreased in the first phase (the negotiation phases) of SSSR for 2005-2006 (estimated coefficient between SSSR1*EOA and EOA_{t+1}= -0.999***). Earnings predictability also significantly decreased, with evidence of a significant positive estimated coefficient between SSSR1 and SDPred (0.059***). Earnings smoothness significantly increased, with evidence of a significant positive association between SSSR1 and SPOS (estimated coefficient between SSSR1 and SPOS= 1.205***). The findings are consistent with H6.1 that earnings persistence and predictability were reduced and earnings smoothness increased in the first phase of SSSR.

Arrival of IFRS-converged CAS and transition from SSSR phase 1 to phase 2: 2005-2008

In the 2005-2008 testing period, there was a concurrent transition from the old Chinese GAAP to IFRS-converged CAS and from phase 1 of SSSR (negotiation) to phase 2 of the SSSR (lock-in). Over this period, it has emerged that earnings persistence significantly decreased from the first phase of SSSR (pre-IFRS convergence: 2005-2006) to the second (post-IFRS convergence: 2007-2008 with an estimated coefficient between IFRS_SSSR2*EOA and EOA_{t+1}= -0.470***. Earnings predictability also significantly decreased, with evidence of a significant positive estimated coefficient between IFRS_SSSR2 and SDPred (0.032***. Earnings smoothness reduced insignificantly with the support of an estimated coefficient between IFRS_SSSR2 and SPOS=-0.292. The findings are consistent with H6.2 that earnings persistence and predictability decreased

in the second phase of SSSR (post-IFRS convergence), earnings smoothness was reduced as predicted, however, this was insignificant (only significant in SOEs).

Completion of the SSSR in the post IFRS-convergence period: 2007-2010

In the 2007-2010 testing period, there was no impact from the change of accounting standards: IFRS-converged CAS came into force with effect after 2007. Over this period, it has been found that earnings persistence significantly decreased in the final phase of SSSR (free trading of previous non-tradable shares) from 2009-2010 (estimated coefficient between SSSR3*EOA and EOA_{t+1}= -0.340***). Earnings predictability also significantly decreased, with evidence of a significant positive estimated coefficient between SSSR3 and SDPred (0.040***). Earnings smoothness significantly increased in the final phase of SSSR (estimated coefficient between SSSR3 and SPOS=0.725***). The findings are consistent with H6.3 that earnings persistence and predictability were reduced, whilst earnings smoothness increased in the final phase of SSSR.

As regards the changes in earnings levels over the SSSR implementation phases and IFRS convergence, there is clear evidence from the univariate findings that these declined in 2005-2006, significantly increased in 2007-2008 and then significantly declined in 2009-2010. The findings support the predictions that managers had an incentive to drive down earnings in the first phase of SSSR, drive them up in the second and drive down earnings in the third phase.

Table 6.13: Summary of chapter results

Period	Transition from	Transition to	IFRS-converged CAS?	Results
2003-2006	Pre-SSSR	SSSR phase 1: negotiation period	No	• Persistence: insig (0.531) changes (-0.999***) to negative (-0.468***) • Predictability: changes (0.059***) • Smoothness: changes (1.205***)
2005-2008	SSSR phase 1: negotiation period Pre-IFRE-converged CAS	SSSR phase 2: lock-in period Post-IFRS-converged CAS	Transition	• Persistence: negative (-0.303***) changes (-0.470***) remains negative (-0.773***) • Predictability: changes (0.032***) • Smoothness: changes (-0.292)
2007-2010	SSSR phase 2: lock-in period	SSSR phase 3: free trading of shares	Yes	• Persistence: negative (-0.129**) changes (-0.340***) remains negative (-0.469***) • Predictability: changes (0.040***) • Smoothness: changes (0.725***)

Results extracted from Tables 6.4-6.12. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance

6.6 Conclusion

6.6.1 Main discussion and conclusion

This chapter has analysed the earnings persistence, earnings predictability and earnings smoothness properties under China's IFRS-converged CAS adoption in 2007 and SSSR from 2005. The modified earnings persistence model of Sloan (1996) has been employed to investigate the changes of earnings persistence level. In addition, the Kormendi and Lipe (1987) approach has been adopted to examine the change of earnings predictablity and the modified Barth *et al*. (2008) small positive approach has been deployed to test the change of earnings smoothness under the impact of recent reforms in China. Separate analyses have been performed for Non-ST versus ST firms, and for Non-SOEs versus SOEs. A non-conventional interpretation of the results on earnings smoothness is that they do not signify earnings persistence.

Firstly, earnings persistence was tested by the adoption Arellano-Bond dynamic estimation to investigate whether earnings became more persistent under the impact of both reforms by examining the association between current earnings and future earnings. In addition to earnings persistence, earnings predictability and smoothness were probed by examining the standard deviation of error variance from regression 6.1 with fixed panel estimation and testing the frequency of reporting small positive earnings with fixed panel logit estimation.

The results obtained have provided strong and consistent support for the chapter hypotheses, viz.: the association between future earnings and the interatction term of SSSR1*EOA significantly decreased in all three testing periods; the association between the standard deviation of error terms and reforms significantly increased, which indicates a reduced earnings predictability; and the association between small postive earnings and reforms improved in the first and third testing periods, but this was insignificant in the second.

6.6.2 More discussion according to phase

To test hypothesis 6.1, the interaction term SSSR1*EOA was introduced in Model (6.2), whilst Model (6.3) and Model (6.4) allowed for test earnings predictability and earnings smoothness.

SSSR1 was equal to 1 from 2005 to 2006, having been 0 from 2003 to 2004, which is before and after the announcement of SSSR having to apply to all non-tradable holding firms. The results suggest that earnings become both less persistent and less predictable during the first testing period. Moreover, there was no significant change of earnings smoothness from pre-SSSR to the first phase of SSSR. The findings support H6.1 – in the first phase of SSSR, earnings show reduced persistence, reduced predictability and increased smoothness.

To test hypothesis 6.2, the interaction term IFRS_SSSR2*EOA was included in Model (6.2) to test earnings persistence. Model (6.3) and Model (6.4) allowed for testing earnings predictability and earnings smoothness. IFRS_SSSR2 was equal to 1 from 2007 to 2008 and 0 from 2005 to 2006, which is before and after the IFRS-converged CAS adoption and represents SSSR from its first phase to its second phase. The findings in this testing period support hypothesis H6.2 – in the second phase of SSSR, earnings show reduced persistence, reduced predictability and low smoothness. Under this testing period, firstly, the use of fair value measurement under IFRS-converged CAS has induced more volatile than historical cost measurement under the old Chinese CAAP. Secondly, the SSSR moved from its first phase of negotiation to its second phase of lock-in period. The findings are consistent with managers acting upon boosted earnings management incentives and driving earnings down then up across the two SSSR phases – so leading to low earnings persistence.

To test hypothesis 6.3, the interaction term SSSR3*EOA was introduced in Model (6.2), whilst Model (6.3) and Model (6.4) allowed for testing earnings predictability and earnings smoothness. SSSR3 was equal to 1 from 2009 to 2010 and 0 from 2007 to 2008, which was when SSSR moved from its second phase of the lock-in period to its final phase of the unlocked period. The results suggest that earnings became less persistent and less predictable during the first testing period. Moreover, there was no significant change in earnings smoothness from the second to the third phase of SSSR. The findings are consistent with H6.3 – earnings have reduced persistence, reduced predictability and increased smoothness in the final phase of SSSR.

Earnings predictability and earnings persistence declined under the impact of the reforms, that is, there was an erosion of these measures of earnings quality through SSSR implementation, and concurrently, IFRS convergence. A significant increase in the incidence

of small positive earnings is seen in the first and the third (final) phases of SSSR implementation; and a reduction in the incidence of small positive earnings is seen in the second phase of SSSR implementation, concurrent with IFRS convergence. All in line with the hypotheses of this Chapter, the findings must be interpreted as being driven by the joint impact of both boosted earnings management incentives created by the non-tradable share reform and the transition to IFRS-converged CAS.

This study contributes to the present literature by for the first time investigating the earnings persistence and earnings predictability properties in China after IFRS-converged CAS adoption. In addition, this is the first work to probe the joint impact of IFRS-converged CAS adoption and SSSR on earnings persistence, earnings predictability and earnings smoothness properties. Regarding which, it has been elicited that temporary increased earnings smoothness led by earnings management incentive seems to be related with low earnings persistence. Moreover, this study is the first to investigate ST and non-ST firms' earnings quality separately after both reforms and it has been revealed that lax accounting standards adoption in 2007 and boosted management incentive by non-tradable shares reform fluctuated earnings performance in the focal testing periods. Finally, the study findings have provided insights for research in emerging markets when investigating IFRS adoption in terms of their special institutional factors and other milestone regulation reforms.

Chapter 7: Earnings timeliness

7.1 Introduction

The previous two chapters presented the analysis of accruals quality, earnings persistence, earnings predictability and earnings smoothness. This chapter investigates the other property of earnings information, namely earnings timeliness, which has been substantially of interest in the prior literature (Ball *et al.*, 2008; Pope and Walker, 1999; García Lara *et al.*, 2005; Ball and Shivakumar, 2005; Basu, 1997; Roychowdhury and Watts, 2007). The studies fall into two main streams, firstly, those investigating whether earnings capture economic consequences by examining earnings timely loss recognition (Ball and Shivakumar, 2006; Ball *et al.*, 2008; Ball and Shivakumar, 2005; Barth *et al.*, 2008). Secondly, there has been examination of the measures for conservatism (Basu, 1997; Givoly and Hayn, 2002; Roychowdhury and Watts, 2007).

The majority of earnings timeliness studies were conducted in advanced economies with more efficient financial markets than emerging ones. Hence, there has been scant study of earnings timeliness in China (Haw *et al.*, 2000; Haw *et al.*, 2003). There are studies that have compared earnings timeliness between China and other countries, such as the EU, Russia, and the USA (McGee *et al.*, 2008a; McGee *et al.*, 2008b; McGee and Yuan, 2008). These studies have found that timely loss recognition is longer in China and Russia than in Western Anglo-American countries. The studies of Haw et al. (2000, 2003) are both from a managers' incentives perspective, investigating whether they are interfering with the timing of loss and gain reporting.

This chapter investigates earnings timeliness of earnings asymmetric timeliness, based on Basu (1997) and Barth *et al.* (2008), from an investors' market information usefulness perspective by comparing whether the timeliness of earnings has performed differently under the impact of China's recent reforms: SSSR and IFRS-converged CAS adoption. Consistent with Chapter 5: earnings accrual quality investigation and Chapter 6: earnings persistence, earnings predictability and earnings smoothness investigation, this chapter incorporates SSSR

in the analysis of the impacts of IFRS adoption on earnings timeliness in China by applying the same datasets.

First of all, there is investigation of the change of large losses reporting (LNEG) frequency from Barth *et al* (2008), where LNEG is a dummy variable taking on 1, if net income scaled by total assets is less than -0.20, otherwise LNEG =1. It is found that the frequency of reporting large losses has significantly increased in the first and the third testing period, with the predicted downward earnings management incentive; there was no significant change of LNEG in the second testing period during the transition of IFRS convergence (SSSR phase 2 to phase 3). Secondly, this chapter investigates the timely losses recognition in the stock market from the investors' market information usefulness perspective, with Basu's (1997) model being adopted to test the timely losses recognition by the financial market. The results reveal that, in the pre-IFRS adoption period, timely losses recognition significantly improved after the non-tradable share reform started in 2005 and that there is significant reduced loss recognition under the transition period of IFRS convergence in 2007. In the post-IFRS adoption period, timely losses recognition changed insignificantly after non-tradable shares became tradable.

The remainder of this chapter is organised as follows: section 7.2 and 7.3 discuss the research objective and hypothesis development, respectively. The research method and data collection are provided in section 7.4. Section 7.5 presents the regression results, whilst the chapter conclusion is provided in section 7.6.

7.2 Research objective and questions

Earnings timeliness is one of the earnings quality properties in accounting information quality research (Dechow *et al.*, 2010). The ability of accounting information to incorporate earnings in the financial market in a timely manner is determined by the demand of information decision usefulness from investors (Ball and Shivakumar, 2006). Conservatism has been employed to investigate the timeliness in previous literature (Basu, 1997; Givoly and Hayn, 2002), with accounting information being considered as conservative when firms recognise losses in a more timely manner than gains.

Ball *et al.* (2003) adopted Basu (1997) reverse regression to investigate whether there was a difference in timely losses recognition across four East Asian regions (Hong Kong, Malaysia, Singapore and Thailand), who shared same accounting standards and legal system origins. They found that Hong Kong exhibited the highest timeliness, which was consistent with its better equity market-oriented reputation, whilst Thailand exhibited the lowest timeliness, which can be attributed to the country's lower development of the equity market and this is under strong political influence. They concluded that timely losses recognition is endogenously related to the countries' equity capital markets incentives, but is not driven purely by the countries' accounting standards and law system. Barth *et al.* (2008) investigated the impact of IFRS adoption on accounting quality, employing both Basu's (1997) model and large losses recognition. It emerged that countries adopting IFRS have better earnings timeliness, that is, accounting standards play significant role in its improvement. Bushman and Piotroski (2006) probed accounting conservatism in 38 countries taking into account various institutional factors and concluded that these like legal systems and political interventions shape accounting conservatism. Some studies have found that corporate governance variables are strongly correlated with earnings timeliness (Bushman *et al.*, 2004; Lara and Mora, 2004; Lafond and Roychowdhury, 2008).

In this study, the aim is to investigate whether earnings timely recognition was improved after China's recent reforms. China's IFRS-converged CAS adoption was happening in the ensuing year of its stock market reforms (SSSR), which were underpinned by the desire to transform its financial market from a credit-based to an equity-based system (Firth *et al.*, 2007). However, whether this stock market reform achieved its goal is debatable. Given the unique time setting of both reforms, the objective of this chapter is to investigate the impact of IFRS convergence and SSSR on earnings timely losses recognition. To address the objective, the research question of this chapter is:

Was there a change in earnings timely losses recognition through the phases of the non-tradable shares reform and in the transition from old Chinese GAAP to IFRS-converged CAS?

7.3 Hypothesis development

Ball *et al.* (2000) defined timeliness as the "extent to which current-period accounting income incorporates current-period economic income", using the change in market value of stockholders' equity as a proxy for economic income. An earlier study by Basu (1997) considered conservatism as the extent to which current-period accounting income asymmetrically incorporates economic losses, relative to economic gains. Accounting recognition is viewed as conservative when firms recognise losses in a timelier manner than gains. In Basu (1997) work, economic gains (good news) and losses (bad news) were measured by positive and negative share returns, respectively. The timelier the accounting earnings incorporate bad news, the better accounting conservatism and hence, the better the accounting information quality. According to the definitions of both timeliness and conservatism in previous studies, earnings timeliness is not only associated with accounting standards quality, but also, with stock market efficiency.

Earnings timeliness has been extensively explored in the international context in both across-country and single-country studies. Regarding the former, Pope and Walker (1999) analysed differences in the timeliness of earnings recognition between the UK and US GAAP financial reporting regimes. They adopted Basu (1997) model and found that differences in timeliness between the UK and US accounting regimes are sensitive to whether extraordinary items are included or excluded in accounting earnings in the UK. Ball *et al.* (2000) applied timeliness analysis to seven international GAAP regimes from the political influence on accounting policy perspective, using the legal system as a proxy for this influence and classifying the seven countries into code law (France, Germany, Japan) and common law (Australia, Canada, US and the UK). They suggested that the properties of accounting information prepared under common-law accounting standards are of particular contemporary interest due to the IAS developed by IASC being widely viewed as reflecting a largely common-law approach to timely disclosure. They found that common-law accounting income exhibits significantly greater timeliness than that of code-law.

The studies in the timeliness context are subject to a major limitation as explained in the following. These involved the stock returns as a proxy for economic income, which requires higher liquidity and public disclosure standards. Poor public disclosure does not

necessarily impede the flow of information into stock price, if the information instead flows via inside trading. The Ball *et al.* (2000) study implies that both accounting standards and stock market efficiency play an important role in improving timeliness. In line with Ball *et al.* (2000), Bushman and Piotroski (2006) investigated accounting conservatism across 38 countries by incorporating different institutional factors and found that, institutional factors have a great impact on accounting conservatism. Some studies have examined the timeliness in single countries, which can avoid the impact of across-country variations. Ball and Shivakumar (2005) investigated timely recognition in private companies in the UK and discovered that accounting information is of lower timely loss recognition in private firms in relative to public firms' accounting information. Ding and Stolowy (2006) investigated the change of earnings properties in timeliness and conservatism in French listed firms during the 1990s considering the substantial changes in the accounting system in 1996. They further compared the timeliness and conservatism according to size, international financing, and audit quality. They found that the degree of conservatism of accounting incomes increased during the research period, because the new accounting system only allowed good news to be recognised gradually in the earnings measure.

This chapter is motivated by the previous work performed by Pope and Walker (1999) and Ball *et al.* (2000), who employed Basu's (1997) model to determine the impact of a change of accounting regimes on earnings timeliness. Both studies' outcomes suggest a change in accounting rules influences firms' financial statement, which will lead to a change in earnings timeliness. Thus, it is of interest to investigate whether earnings timeliness varied after China's IFRS convergence in 2007. This study further considers the impact of China's SSSSR implementation from 2005 on timely loss recognition in addition to the impact of IFRS convergence in 2007. As timeliness involves examining the level of current accounting incomes incorporated into current economic incomes, which are measured with the stock market returns (Basu, 1997), it is predicted that the stock market reform in China had an influence on the outcome of earnings timeliness.

As previous discussed, SSSR transferred non-tradable shares into being tradable after the final phase. Thereafter, the difference between tradable and non-tradable shares was eliminated, hence improving market liquidity and efficiency. In the first phase and the second

phase of SSSR, there was still a large amount of non-tradable shares, so the market was less liquid and efficient than subsequently. In the first phase, it is predicted that managers had incentives to drive down earnings to reduce the compensation level to pre-existing holders of tradable shares. In the second phase, it is conjectured that managers had incentives to drive up earnings to boost the share prices to sell shares at high prices when non-tradable shares become tradable. In the third phase, it is predicted that managers had incentives to drive down earnings to repurchase shares back at low price and to retain non-tradable shareholders controlling position. In accordance with these predictions, there is a downwards earnings management inventive in the first phase of the SSSR, an upwards earnings management incentive in the second phase, and return to a downwards earnings management incentive in the third phase. This chapter tests the impact of the SSSR implementation and the transition to IFRS-converged CAS with three hypotheses as follows:

H7.1: In the first phase of SSSR, there will be increased incidence of large loss reports and more timely loss recognition.

H7.2: In the second phase of SSSR, there will be a decreased incidence of large loss reports and less timely loss recognition.

H7.3: In the third phase of SSSR there will be increased incidence of large loss reports and more timely loss recognition.

The key methodological issue is whether or not more large loss reports and improved timely losses recognition indicates enhanced accounting information quality after China's SSSR and IFRS-converged CAS adoption. In this context, increasing timely losses recognition is not susceptible to traditional interpretation, since the management market incentives were motivated in different directions by SSSR and the market was less efficient, with less liquidity, before all shares became tradable.

7.4 Research method

As proposed in the study of Ahmed and Duellman (2007), two measures are adopted: the large losses report recognition (Barth *et al.*, 2008) and timeliness of loss recognition (Basu, 1997; Roychowdhury and Watts, 2007).

7.4.1 Empirical models

Following the previous studies (Lang *et al.*, 2003; Lang *et al.*, 2006; Barth *et al.*, 2008), this chapter measures timely loss recognition as the coefficient on large negative net income (LNEG) (7.1) and accounting conservatism on the loss recognition reflected in the stock returns (7.2).

$$LNEG_{i,t} = \alpha + \beta_1 DUM + \sum_{k=2} \alpha_k Control_{k,i,t} + \varepsilon_t \qquad (7.1)$$

where, LNEG is a dummy variable taking on 1, if net income scaled by total assets is less than -0.20, otherwise LNEG = 0. All other variables are as previously defined in Chapter 5. A positive coefficient of β_1 in Model (7.1) indicates that firms recognised large losses more frequently in post reform period than in pre-reforms one. SSSR in Model (7.2) stands for both the SSSR1 (2003-2006) and SSSR3 (2007-2010) periods. The metric for LNEG is modified from Barth *et al.* (2008), which used IFRS as a dependent variable. DUM is defined in Chapter 5. It is contended that SSSR1, IFRS_SSSR2 and SSSR3 should be explanatory variables rather than dependent variables, with LNEG being so. Nonetheless, considering LNEG as being a binary dependent variable, the regression involves adopting fixed panel logit estimation, rather than OLS, as in Barth *et al.* (2008) study. The LNEG measure from Barth *et al.* (2008) cannot capture the reaction of market to the loss report, for it only focuses on whether the actual loss reporting is encouraged.

To test further the timely recognition of loss reporting by the stock market, in this chapter, the model from Roychowdhury and Watts (2007) is employed.

$$\frac{EPS_{i,t-j}}{ME_{t,t-j-1}} = \beta_0 + \beta_1 R_{i,t-j} + \beta_2 BAD_{i,t-j} + \beta_3 R_{i,t-j} * BAD_{i,t-j} + \varepsilon_{it} \qquad 7.2$$

Roychowdhury and Watts (2007) suggested that the Basu (1997) reverse regression of earnings to measure the timeliness in earnings ignores the effects of conservatism prior to the estimation period and thus, does not reflects its total. For this study, the empirical model from Roychowdhury and Watts (2007) is adopted to measure timeliness based on the cumulative earnings per share over mutiple periods, but not the Basu (1997) model, which

measures it over one single year. Estimated timeliness of recognition loss reports (bad news), equity returns, and the interaction of reforms with equity returns and a bad news variable to estimate whether the reforms have impact on the timely loss recognition by introducing dummy variables, as follows:

$$\frac{EPS_{i,t-j}}{ME_{t,t-j-1}} = \beta_0 + \beta_1 R_{i,t-j} + \beta_2 BAD_{i,t-j} + \beta_3 R_{i,t-j} * BAD_{i,t-j} + \beta_4 DUM + \beta_5 DUM * R_{i,t-j} * BAD_{i,t-j} + \varepsilon_{it} \quad (7.3)$$

where, $EPS_{i,t-j}$ is earnings per share cumulative from year t-j to year t; when t=1, EPS is not accumulated and j is equal to 0; $ME_{t,t-j-1}$ is the market value of equity at the end of year t-j-1; $R_{i,t-j}$ is the 15-month return, which is the buy and hold return starting 3 months after the end of the fiscal year t-j-1 and ending 3 months after the end of year t, then adjusted by the dividend at the end of fiscal year t, following Harris *et al.* (1994) and Lev and Zarowin (1999), $R_t = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$. In prior research, market returns from the start of the fiscal year to 6-months or 5 months (Bartov *et al.*, 2001) and 3 months (Francis and Schipper, 1999) after the fiscal year has been adopted. Kothari and Sloan (1992) were the first propose the calculation of returns by using the overlapping period based on the notion that price lead earnings. They suggested that the returns calculation with overlapping periods provides more powerful results. For the current study, earnings timely loss recognition is test by adopting 15 months returns, where BAD takes one, if $R_{i,t-j}$ is less than zero and 0, otherwise.

β_3 captures the incremental response of bad news relative to good news. Under conservative reporting, β_3 is expected to be positive and the larger its coefficient, means timelier the loss recognition. Increased β_5 indicates there was more timely loss recognition after the reforms. Following prior studies, panel data cross section regressions are deployed with heteroscedasticity-robust standard errors to estimate the regression models. Givoly and Hayn (2000) criticised the above measure of conservative reporting for relying on the stock price movements to identify the timely recognition of good and bad news.

7.4.2 Data collection

The data collection is same with chapter 5. The following table shows the definition of variables used in earnings timeliness analysis. The control variables are as previously explained in Chapter 5.

Table 7.1: Definition of the variables

$LNEG_{i,t}$	A dummy variable that takes a value of 1, if net income scaled by total assets is less than -0.20, otherwise 0
$EPS_{i,t-j}/ME_{i,t-j-1}$	Earnings per share cumulative from year t-j to t divided by the market value of equity at the end of year t-j-1
$R_{i,t-j}$	15-month equity return
BAD	A dummy variable that takes a value of. 1 if R is less than zero, otherwise 0

7.5 Results

This section interprets and discusses the regression results regarding earnings timeliness.

7.5.1 Univariate analysis

Table 7.2 represents the summary statistics of the variables used in the earnings timeliness analyses. From pre-SSSR to its first phase, the mean of LNEG significantly increases from 0.075 to 0.160 (0.085***), which means that the frequency of reporting large losses was increased in the negotiation period of SSSR over the period 2003-2006; the mean of LNEG then decreases significantly (-0.034***) from 0.160 to 0.126 from the first phase of SSSR (pre-IFRS) to the second phase of SSSR (post-IFRS) over the period 2005-2008; finally, the mean of LNEG decreases insignificantly (-0.008) from 0.126 to 0.118 after IFRS adoption from the second phase of SSSR to the third phase. The change of means in the testing period supports the above hypothesis that there was an incentive to drive down earnings in the first phase of SSSR, hence more large losses reports, with the mean significantly increasing (0.085***). There was an incentive to drive up earnings in the second phase of SSSR, hence less large losses reports, with the mean significantly decreasing (-0.034***). Regarding the hypothesis that there was an incentive to drive down earnings in the final phase, the means for this period show that there was no significant change in large losses reports.

The mean of BAD significantly increases (0.253***) from 0.443 to 0 696 in the first testing period from pre-SSSR to its first phase. This is a dummy variable that takes one if market return is less than zero and hence, the increase in BAD indicates the frequency of a negative market return was increased after 2005. The mean of BAD then significantly decreases (-0.215***) from the first phase of SSSR (0.696) to the second phase of SSSR (0.481), which suggests that negative market return was reduced during the transition of phase 1 to phase 2. The mean of BAD further significantly declines (-0.331***) from the second phase of SSSR (0.481) to the final phase (0.150). Finally, the decrease in BAD in phase 2 and phase 3 indicates that the frequency of negative market return was decreased after the finish of SSSR negotiation.

The mean of equity return significantly decreases (-0.066***) from 0.010 to –0.056, which indicates that the market return significantly decreased and became negative from pre-SSSR to its negotiation period. The mean of equity return significantly increases (0.055***) from -0.056 to –0.001, which indicates that the market return significantly increased and became less negative from negotiation period of SSSR to lock-in period. The mean of equity return continues to increase (0.132***) from the lock-in period of SSSR (-0.001) to the unlocking period of SSSR (0.132), which indicates that the market return significantly increased and became positive from the lock-in period to unlocking period. The increased equity return in the testing period suggests that the financial market became active and average returns increased following the non-tradable shares becoming tradable.

Variable EPS/ME is used to estimate the sensitivity of earnings per share to share price, where a higher EPS/ME indicates a better earnings response to it. The mean of EPS/ME increases significantly (0.241) from pre-SSSR (0.201) to the first phase of SSSR (0.442). The mean of EPS/ME continues to increase (0.527***) from the first phase of SSSR (0.442) to the second phase of SSSR (0.969). The mean of EPS/ME increases significantly to 1.414 (0.444***) in the third phase of SSSR. The change of mean in EPS/ME indicates that the ratio of the cumulative earnings per share to per share price increased significantly in the testing period and the recognition of earnings in the share price improved.

Table 7.2: Chapter summary statistics

	Pre-SSSR1 (2003-04)				Phase 1 (2005-06)				Phase 2 (2007-08)				Phase 3 (2009-10)			
	Mean	**Median**	**St Dev**	**Obs**	**Mean**	**Median**	**St Dev**	**Obs**	**Mean**	**Median**	**St Dev**	**Obs.**	**Mean**	**Median**	**St Dev**	**Obs**
LNEG	0.075	0	0.264	2291	0.160	0	0.367	2443	0.126	0	0.332	2712	0.118	0	0.284	3332
BAD	0.443	0	0.497	2273	0.696	1	0.460	2425	0.481	0	0.500	2709	0.150	0	0.357	3326
R	0.010	0.004	0.072	2139	-0.056	-0.064	0.117	2328	-0.001	-0.035	0.349	2440	0.132	0.110	0.149	2846
EPS/ME	0.201	0.200	0.741	2291	0.442	0.462	1.416	2443	0.969	0.795	1.936	2712	1.414	1.037	2.423	3332

This table presents summary statistics of variables used in the timely losses recognition analyses (mean, median, standard deviation and the number of observations). Variables are as previous defined. The control variable definitions and summary statistics are presented in Table 5.2 and Table 5.6, respectively, in chapter 5.

7.5.2 Regression results

This section analyses the change in earnings timeliness under the impact of the SSSR and IFRS-converged CAS adoption in China, and further considers its special institutional background: ST rules in the financial market and large proportion of SOEs.

Large loss recognition

First of all, the change of large losses recognition is examined by testing the change of LNEG (Barth *et al.*, 2008). The results show in Table 7.3 that SSSR1 is significantly positively correlated with LNEG (0.462***), while IFRS_SSSR2 is insignificantly correlated with LNEG (0.162) and SSSR3 is significantly and positively correlated with LNEG (0.746***). The findings suggest that large loss reports increased significantly with the first (negotiation) phase of the SSSR implementation (and pre-adoption of IFRS-converged CAS); and with the third (post-lock in) phase of the SSSR implementation (and post-adoption of IFRSs-converged CAS). But there was no significant change in large loss reports with the transition to the second (lock-in) phase of the SSSR implementation combined with the transition to IFRS-converged CAS. The association between SSSR3 and LNEG is positive and significant (0.746***), with the overall direction being consistent with the hypotheses proposed above in the first and the third testing period: there was increased large losses reporting in first phase and also in the third phase, but there was no significant decrease in large losses reports in the second phase.

With regard to firms' specific characters, Appendixes 1 to 3 show both reforms increased ST firms' large losses recognition. ST firms is significantly positively correlated with LNEG under the first phase of SSSR (0.574***), under IFRS-converged CAS adoption period/the second phase of SSSR (0.712) and under the third phase of SSSR (0.712***). The findings indicate SSSR significantly encouraged ST firms' large losses recognition. The result in the first phase of SSSR and under the IFRS-converged CAS adoption/the second phase of SSSR shows there is no significant impact on LNEG in SOEs, whilst LNEG has significantly increased in SOEs (0.796***) under the third phase of SSSR.

Table 7.3: Estimates of LNEG (Model 7.1): firm years 2003-2010

Dependent var:	(1) 2003-2006	(2) 2005-2008	(3) 2007-2010
SSSR1	0.462***		
	(0.173)		
IFRS_SSSR2		0.156	
		(0.127)	
SSSR3			0.746***
			(0.159)
SIZE	-0.725	-0.562*	-0.969**
	(0.571)	(0.308)	(0.442)
LEV	0.062**	-0.001	-0.000
	(0.030)	(0.001)	(0.001)
CR	-1.355***	-0.646***	-1.078***
	(0.300)	(0.155)	(0.234)
INV	-0.014	0.232	0.792
	(0.194)	(0.341)	(0.548)
NOI	-6.776**	-18.406***	-16.785***
	(2.862)	(3.863)	(4.205)
CFO	-9.979***	-5.287***	-2.478**
	(1.702)	(1.031)	(1.038)
MOWN	106.665***	-9.300	-12.938
	(36.239)	(9.042)	(9.598)
CONCEN	0.009	-0.008	-0.007
	(0.012)	(0.010)	(0.018)
AUDIT	0.186	-0.053	-0.318
	(0.677)	(0.594)	(0.898)
Observations	725	1,274	791

Based on firm-year observations 2003-2010 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. IFRS_SSSR2=0 for 2005-2006; 1 for 2007-2008. SSSR3=0 for 2007-2008; 1 for 2009-2010. All variables as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this Chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Both reforms significantly increased ST firms' large losses recognition, which may be due to the nature of these firms and the limitation of the method for identifying large losses[56]. Theoretically, STs were predicted to report more losses than non-ST firms. For this study, non-

[56] The LNEG equals to 1, if losses are greater than -0.2.

operating income (NOI) is adopted to capture whether related party transactions are associated with large losses recognition and it is found that NOI is significantly negatively correlated with LNEG in all three testing periods. The findings indicate that higher non-operating income was associated with lower frequency of reporting large losses and that firms who used related party transactions were, in general, less likely to report large losses. Firm size is significantly negatively correlated with LNEG, which suggests that large firms were associated with lower frequency of reporting large losses. Credit ratio is negatively and significantly associated with LNEG in all three testing periods, which suggests that firms with a high credit ratio were less likely to report large losses than their counterparts with a low one. CFO is significantly and negatively correlated with LNEG in the first and the second testing period, however, there is no significant relation between the two in the final testing period. MOWN is positively correlated with LNEG, whilst the correlation becomes insignificant in the second and the third testing periods. The evidences suggest that a high portion of management ownership is associated with a high frequency of reporting large losses. The rest of control variables do not have a significant impact on LNEG.

In conclusion, from a large loss recognition perspective, the findings from Table 7.3 suggest that LNEG significantly increased in the first phase of SSSR; LNEG decreased in the second phase of SSSR/after IFRS-converged CAS adoption, however, insignificantly; and LNEG significantly increased in the third phase of SSSR. The findings are consistent with the three proposed hypothesis that there was an incentive to manage earnings downwards in the first phase, thus increasing LNEG; there was an incentive to manage earnings upwards in the second phase, thereafter, decreasing LNEG; and there was an incentive to manage earnings downwards in the third phase, thereafter, increasing LNEG.

This study also adopts Basu (1997) model to capture the losses timely recognition in the financial market to investigate further whether this recognition was timelier in the Chinese financial market under the impact of IFRS-converged CAS adoption and SSSSR.

Timely loss recognition

Table 7.4 shows the results of Model (7.3). Table 7.4 reveals that asymmetric timeliness (R*BAD) in earnings is observed as being negative and significant pre-SSSR (-0.502*), which

indicates that negative returns were recognised in the earnings in a less timely manner in the pre–SSSR period. The interaction term of SSSR1*R*BAD is positively and significantly (1.036***) correlated with EPS/ME, which indicates that the timely loss recognition improved by 1.036*** and the association between R*BAD and EPS/ME becomes 1.538*** in phase 1 of the SSSR. The findings suggest that the timely loss recognition is significantly improved in the first phase of SSSR.

The second column of Table 7.4 show the change of timely loss recognition in the second testing period. The association between R*BAD and EPS/ME in the first phase of SSSR is 0.192***. Interaction term of IFRS_SSSR2*R*BAD is negatively and significantly correlated with EPS/ME (-0.234***), which indicate that the timely loss recognition significantly decreases to -0.042. The findings suggest that the timely loss recognition is significantly decreased from the first phase of SSSR (pre-IFRS) to the second phase of SSSR (post-IFRS).

The third column of Table 7.4 show the change of timely loss recognition in the third testing period. The association between R*BAD and EPS/ME in the second phase of SSSR negative but insignificant (-0.017). Interaction term of SSSR3*R*BAD is positively correlated with EPS/ME (0.802) insignificantly, which indicate that the timely loss recognition increases to 0.778 (insignificantly). The findings suggest that the last phase of SSSR does not have significant impact on the timely loss recognition.

The findings in this section supports the hypotheses 7.1, 7.2 and 7.3 that there is an incentive to drive down the earnings and share prices in the first phase and the third phase of SSSR, thereafter, the findings of encouraged timely losses recognition in the first and the third phase of SSSR; there is an incentive to manage up earnings in the second phase, thereafter, reduced timely losses recognition in the second testing period.

Table 7.4: Estimates of timely loss recognition (Model 7.3): firm years 2003-2010

Dependent var:	(1) 2003-2006	(2) 2005-2008	(3) 2007-2010
R (15 months)	0.089	0.046***	-0.010
	(0.098)	(0.014)	(0.013)
BAD	0.003	-0.006	-0.022*
	(0.015)	(0.009)	(0.013)
R*BAD	-0.502*	0.192***	-0.017
	(0.271)	(0.062)	(0.055)
SSSR1	0.069***		
	(0.011)		
SSSR1*R*BAD	1.036***		
	(0.242)		
IFRS_SSSR2		-0.024***	
		(0.008)	
IFRS_SSSR2*R*BAD		-0.234***	
		(0.059)	
SSSR3			0.043***
			(0.006)
SSSR3*R*BAD			0.802
			(1.000)
Constant	0.009	0.074***	0.069***
	(0.010)	(0.007)	(0.005)
Observations	3,856	4,174	3,365
R-squared	0.027	0.017	0.045

Based on firm-year observations 2003-2010 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. IFRS_SSSR2=0 for 2005-2006; 1 for 2007-2008. SSSR3=0 for 2007-2008; 1 for 2009-2010. All variables as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Furthermore, the impact of both reforms on the timeliness recognition of earnings between ST and Non-ST and between SOEs and Non-SOEs in China is compared. Tables 7.4.1, 7.4.2 and 7.4.3 show the regression results from Model 7.3. Those in 7.4.1 show that the timeliness recognition of earnings is significantly negative for STs, non-STs, SOEs and Non-SOEs in the pre-SSSR period. The correlation coefficient significantly increased across all four categories. The findings are consistent with the results from the whole sample tests.

Table 7.4.1: Estimates of timely loss recognition (Model 7.3): firm years 2003-2006

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
R (15 months)	0.089	-0.038	0.343	0.179	0.045
	(0.098)	(0.047)	(0.345)	(0.245)	(0.083)
BAD	0.003	0.000	0.013	0.001	0.006
	(0.015)	(0.007)	(0.053)	(0.038)	(0.013)
R*BAD	-0.502*	0.045	-0.983	-0.665	-0.396*
	(0.271)	(0.133)	(0.884)	(0.678)	(0.228)
SSSR1	0.069***	0.130***	-0.170***	0.023	0.089***
	(0.011)	(0.005)	(0.044)	(0.029)	(0.010)
SSSR1*R*BAD	1.036***	0.358***	1.544**	1.395**	0.821***
	(0.242)	(0.120)	(0.784)	(0.601)	(0.204)
Constant	0.009	0.034***	-0.057*	0.001	0.015*
	(0.010)	(0.005)	(0.035)	(0.024)	(0.008)
Observations	3,856	2,917	939	1,292	2,564
R-squared	0.027	0.287	0.149	0.041	0.054

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance

Table 7.4.2 shows that IFRS adoption (IFRS_SSSR2*R*BAD) has significantly reduced timely recognition of bad news in non-ST firms and SOEs, whilst it has no significant impact on earnings timely losses recognition of STs and Non-SOEs. The results indicate that non-ST firms and SOEs recognised bad news in a less timely manner than their counterpart firms after IFRS adoption/ in the second phase of SSSR.

Table 7.4.2: Estimates of timely loss recognition (Model 7.3): firm years 2005-08

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
R (15 months)	0.046***	0.021	0.032	0.036*	0.105***
	(0.014)	(0.018)	(0.029)	(0.021)	(0.027)
BAD	-0.006	0.003	-0.041	-0.021	0.007
	(0.009)	(0.005)	(0.042)	(0.023)	(0.008)
R*BAD	0.192***	0.282***	-0.135	0.220	0.130**
	(0.062)	(0.036)	(0.241)	(0.153)	(0.055)
IFRS_SSSR2	-0.024***	-0.051***	0.103***	-0.012	-0.035***
	(0.008)	(0.004)	(0.037)	(0.019)	(0.007)
IFRS_SSSR2*R*BAD	-0.234***	-0.288***	0.131	-0.314**	-0.220***
	(0.059)	(0.031)	(0.255)	(0.149)	(0.049)
Constant	0.074***	0.152***	-0.230***	0.031*	0.092***
	(0.007)	(0.004)	(0.033)	(0.017)	(0.006)
Observations	4,174	3,320	854	1,507	2,667
R-squared	0.017	0.098	0.047	0.016	0.033

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2 = 0 for 2005-2006; 1 for 2007-2008. All variables as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance

Table 7.4.3 shows that the transition of non-tradable shares to tradable ones in the post-IFRS convergence period increased firms' timely losses recognition, however, insignificantly. The increase of timely losses recognition only shows significance in non-ST firms. The findings suggest increased timely losses recognition after non-tradable shares became practically tradable and that this was substantial in non-STs.

Table 7.4.3: Estimates of timely loss recognition (Model 7.3): firm years 2007-10

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
R (15 months)	-0.010	-0.031**	-0.024	-0.009	-0.008
	(0.013)	(0.014)	(0.028)	(0.019)	(0.022)
BAD	-0.022*	-0.022***	-0.022	-0.031	-0.018*
	(0.013)	(0.007)	(0.064)	(0.031)	(0.011)
R*BAD	-0.017	-0.023	0.144	-0.092	0.013
	(0.055)	(0.031)	(0.272)	(0.135)	(0.047)
SSSR3	0.043***	0.085***	-0.137***	0.046***	0.041***
	(0.006)	(0.003)	(0.029)	(0.015)	(0.005)
SSSR3*R*BAD	0.802	1.065*	0.099	1.010	0.350
	(1.000)	(0.587)	(3.253)	(1.763)	(1.056)
Constant	0.069***	0.103***	-0.075***	0.044***	0.085***
	(0.005)	(0.004)	(0.023)	(0.012)	(0.006)
Observations	3,365	2,758	607	1,344	2,021
R-squared	0.045	0.381	0.061	0.025	0.105

Based on firm-year observations 2007-2010 from Chinese listed firms. SSSR3 = 0 for 2007-2008; 1 for 2009-2010. All variables as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance

To summarise, the results from Table 7.4 and its sub-tables suggest that Chinese firms were able to capture more economic losses in a timely manner in the first testing period. They were able to capture economic losses in a less timely manner in the second testing period. In particular, Table 7.4.1 and Table 7.4.2 show that the ability to capture timely losses was improved in all ST, Non-ST, SOE and Non-SOE in first phase of SSSR. However, the ability to capture timely losses declined among all Non-ST, SOEs and Non-SOEs in the second phase of SSSR, whilst there was a downward earnings management incentive. Table 7.4.3 shows the ability to capture bad news in a timelier manner in the third phase of SSSR, however, this is only significantly among Non-ST firms. Based on the Basu's (1997) model, it is concluded that loss recognition was timelier in the first phase of SSSR and became reduced in the second phase when being combined with the impact of IFRS-converged CAS adoption. The findings from Model (8.3) further support the prediction that earnings were manipulated downwards in the first and the final phases, whilst they manipulated upwards in the second phase of SSSR:

there were increased loss reports and loss recognition in the first and the final phases, but decreases in these during the second phase of SSSR. The findings further suggest that the impact of China's IFRS-converged CAS adoption was a strongly boosted management incentive from SSSR.

7.5.3 Summary of the principle results

This subsection summarises the key findings of this chapter, as collated in Table 7.5.

Relating the hypotheses of this Chapter to the models: in the negotiation (first) and completion (last) phases of SSSR, the hypothesis is that the incidence of large loss reports will increase, and the timeliness of loss recognition will improve. In terms of the Chapter's models/test, suggests that the association between SSSR1 and LNEG will increases, and the association between SSSR1*R*BAD and $\frac{EPS_{i,t-j}}{ME_{t,t-j-1}}$ will also increases. The reverse is true in the lock-in (second) phase of the SSSR, where the hypothesis is that the incidence of large loss reports will decrease, and the timeliness of loss recognition will reduce.

Consistent with and supporting hypotheses H7.1, H7.2 and H7.3 of this chapter, the principal multivariate regression estimation results show the following:

Pre-SSSR to SSSR phase 1: 2003-2006

In the 2003-2006 testing period, it has been found that earnings timeliness significantly increased in the first phase (the negotiation phases) of SSSR from 2005-2006 (estimated coefficient between SSSR1 and LNEG = 0.462***; SSSR1*R*BAD and $\frac{EPS_{i,t-j}}{ME_{t,t-j-1}}$ =1.036***).

The findings are consistent with H7.1 – that an incentive to drive down earnings in the first phase of the SSSR appears to be manifest in an increased incidence of large loss reports and more timely loss recognition.

Arrival of IFRS-converged CAS and transition from SSSR phase 1 to phase 2: 2005-2008

In the 2005-2008 testing period, there was a concurrent transition from old Chinese GAAP to IFRS-converged CAS and from phase 1 of SSSR (negotiation) to phase 2 (lock-in). Over this period, it has been elicited that earnings timeliness significantly decreased in the second phase of SSSR from 2007-2008 (estimated coefficient between

IFRS_SSSR2 and LNEG = 0.156; IFRS_SSSR2*R*BAD and $\frac{EPS_{i,t-j}}{ME_{t,t-j-1}}$ = -0.234***).The findings provide some support for H7.2 – a significant reduction timely loss recognition is consistent with upwards earnings management in response to an SSSR-related incentive to do so.

Completion of the SSSR in the post IFRS-convergence period: 2007-2010

The 2007-2010 testing period is all in the post-IFRS-convergence, and so was free from any major direct impact from changing accounting standards. In the third phase of SSSR, large losses reporting significantly increased (estimated coefficient between SSSR3 and LNEG = 0.746***); but there was no significant change in timely losses recognition (SSSR3*R*BAD and $\frac{EPS_{i,t-j}}{ME_{t,t-j-1}}$ = 0.802). The findings provide some support for H7.3 – a significant increase in the incidence of large loss recognition is consistent with downwards earnings management in response to an SSSR-related incentive.

It must be highlighted that the foregoing discussion is based on a non-standard interpretation of test results. Conventionally, increases incidence of large loss reports and more timely loss recognition are both held to represent improving earnings quality – in essence, the usual inference is that management are not trying to hide losses or sit on bad news. Interpretation in this Chapter is conditioned by the Chinese context, and, in particular incentives to manipulate earnings downwards, then upwards and then downwards again.

Table 7.5: Summary of the chapter results

Period	Transition from	Transition to	IFRS-converged CAS?	Results
2003-2006	Pre-SSSR	SSSR phase 1: negotiation period	No	• Large losses recognition: changes (0.462***) • Timely losses recognition: negative (-0.502*) changes (1.036***) to positive (0.534***)
2005-2008	SSSR phase 1: negotiation period Pre-IFRE-converged CAS	SSSR phase 2: lock-in period Post-IFRS-converged CAS	Transition	• Large losses recognition: changes (0.156) • Timely losses recognition: positive (0.192***) changes (-0.234***) to negative (-0.042)
2007-2010	SSSR phase 2: lock-in period	SSSR phase 3: free trading of shares	Yes	• Large losses recognition: changes (0.746***) • Timely losses recognition: negative (-0.017) changes (0.802) to positive (0.785)

Results extracted from Tables 6.4-6.12. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significant

7.6 Conclusion

In this chapter, earnings timeliness from both large loss reports and loss timely recognition under China's IFRS-converged CAS adoption and SSSR has been analysed. As previously examined in the accrual quality and earnings persistence chapters, the uniqueness of this study is that it concerns the potential impacts of SSSR on accounting information quality. The findings are consistent with Chapter hypotheses H7.1, H7.2 and H7.3. In the incidence of large loss reports increased and the timeliness of loss recognition improved in the first phase of SSSR. The timeliness of loss recognition deteriorated in the second phase of the SSSR, concurrent with the transition to IFRS-converged CAS (i.e., under the combined impact of the two reforms); and the incidence of large loss reports increased again during the third (final) phase of the SSSR implementation. This in turn is consistent with SSSR-related incentives to manage earnings downwards, then upward, then down again.

The contributions of this chapter are: firstly, there is no previous investigation of the change of earnings timeliness under both IFRS-converged CAS and SSSR in China; and secondly, the consistence of the hypotheses and the findings is questioning whether the improved/reduced earnings timeliness truly indicates improved/reduced earnings quality by taking into consideration of strong management incentives and less efficient market background in China or other emerging countries. Thirdly, the findings in this chapter also seem to suggest that any potential mitigating effect on earnings manipulation from the adoption of IFRS-converged CAS was overwhelmed by the actions of management in response to incentives created by the SSSR implementation. But no firm, quantifiable claim in this regard may be made based on the empirical analyses of this study.

Chapter 8: Earnings value relevance

8.1 Introduction

The previous chapters have provided the analysis of earnings quality in terms of accrual quality, earnings persistence and earnings timeliness. Accrual quality refers to analysing the reliability of earnings information, whilst earnings persistence pertains to assessing the prediction ability of earnings information and earnings timeliness with earnings persistence test the conservatism of earnings information. This chapter will present the value relevance aspect of the accounting information quality, which involves examining the association between a firm's market value and accounting measures. In other words, it is concerned with the association between share price and book value and earnings as well as market returns and earnings. The value relevance analysis has the aim of determining whether or not accounting numbers have facilitated the firm's market price and informed users' decision making.

The basis of value relevance studies is market efficiency. Kothari (2001) suggests that firm valuation in finance is accounting-based valuation, being the present value of expected future cash flows discounted at the appropriate risk adjusted rate of return. The better the market efficiency the more the valuation accuracy. The firm's current performance shown in its financial statements becomes an important input to the market's assessment of the firm's value due to the expected temporal relation between current financial performance and future cash flows. So, contemporaneously, there is an expected relation between financial performance and share price and return. Kothari (2001) further suggests that current accounting statements are likely to be useful and accurate for financial market valuation when this information can capture the future economic outcomes. Nevertheless, in some studies that have been focused on identifying share mispricing, has been argued that market valuation analysis is based on future revenues, expenses, earnings and cash flows, so financial statements prepared by current or past accounting guidelines may not provide adequate summary statistics for future market price valuation (Levi, 2008; Barth *et al.*, 1998). Another summary paper by Beaver (2002) supports Kothari (2001), in which it is contended that the value relevance of accounting information ascertains whether these data are useful for the

firm's market valuation after having studied the association between the accounting data and future share prices (Lee, 1999; Holthausen and Watts, 2001). Lee (1999) found that accounting data as an independent variable in his accounting-based value relevance study had relevance in explaining share returns and share price as the dependent variables.

Wyatt (2008) evaluated the relevance and reliability of financial and non-financial information. She criticised value relevance studies for not including judgments about the reliability of information and suggested that differences in value relevance could be due either to different relevance, or to different reliability, or both. An association of earnings and share prices implies that less reliable accounting information may mislead investors. However, in an illiquid/inefficient market, a strengthening association between earnings and share prices does not necessarily imply an improvement in earnings quality and decision usefulness, if both earnings and market prices are subject to manipulation.

In this chapter, value relevance information is interpreted in the sense of the usefulness of accounting data for corporate market valuation. This is investigated in the context of China to ascertain whether the value-relevance of accounting information has been improved after the recent reforms. The findings from this study are in accord with those of Wyatt (2008), as reported in Chapters 5 and 6, whereby lower accruals quality, persistence and earnings predictability, reinforces doubts about whether improved value relevance is a sign of better accounting information quality.

The general concern for value relevance study in an emerging stock market is the level of market efficiency. China, the largest emerging economy, established the Shanghai and Shenzhen stock exchanges in the early 1990s to support Chinese businesses and economic development. In emerging market countries, the stock markets are less efficient than developed financial markets and hence, the ability of the share prices to capture accounting and other information is less certain. There are two points to clarify at this stage: first, highly efficient stock markets cannot be assumed to have existed in China, even though the assumption of the value relevance analysis requires them to be so, albeit many prior empirical studies on value relevance have been silent on the market efficiency matter (Aboody *et al.*, 2002). Second, the stock market reforms from 2005 onwards and the adoption of IFRS both show the desire for advanced stock market infrastructure and efficiency, with both being

considered to be milestones of Chinese stock market development. That is, these are seen to have led to a more market-based financial system that has improved market efficiency in line policy makers' objectives.

This chapter is organised as follows. The objective and research questions are presented in section 8.2, whilst hypothesis development is provided in section 8.3. The research methods, data collection and regression results are presented in sections 8.4 and 8.5. Finally, in section 8.6 there are the chapter conclusions.

8.2 Research objective and questions

Prior studies have reported the value relevance of accounting information in different countries. Bartov *et al.* (2001) probed whether the earnings or cash flows value relevance is different across the US, UK, Canada, Germany and Japan. They found that earnings in Anglo-Saxon countries have greater explanatory power for stock returns than cash flows, whilst conversely, earnings in non-Anglo-Saxon ones do not. Arce and Mora (2002) investigated the differences in accounting practices between earnings and book value and the stock market value of the firm among eight European countries (Belgium, France, Germany, Italy, the Netherlands, Switzerland, Spain and the UK) from 1990-98, with 22,436 non-financial firm-year observations. They found that earnings are more relevant than book value in investor-orientated countries, whilst the opposite is the case in creditor-orientated ones. Arce and Mora (2002) asserted that accounting practices are affected both by different accounting rules and by different institutional factors. Moreover, they argued that the use of a common set of standards could mitigate the differences caused by the accounting rules, but not those caused by institutional and cultural factors. Both Bartov *et al.* (2001) and Arce and Mora (2002) studies, based on European and US capital market data, reported similar conclusions that earnings are more relevant in common law countries with an investor-orientated capital market than they are in code law countries with creditor-orientated one. Charitou *et al.* (2000), however, elicited that both earnings and cash flows are value relevant in Japan at much the same level as in the US market. For their study, they examined the explanatory power of earnings and cash flows on stocks returns by using data from Japanese stock market for the period 1984-93, with 6,662 firm-year observations. The Japanese financial market is heavily based on creditor orientation rather than investor orientation.

In the Chinese context, Haw *et al.* (1999) investigated earnings value relevance by examining the information content of accounting earnings measured under the old Chinese GAAP based on A-shares over the period 1994-1997. They found that adjusted stock returns over short- or long-windows were significantly associated with the change of earnings and concluded that earnings provide useful information to investors in China. Chen and Wang (2004) examined the value relevance of operating earnings and below-the-line items to Chinese financial markets. They discovered that below-the-line items are overused to facilitate income-increases and frequently account for a large proportion of listed firms' net income. They suggested that earnings components (including non-operating earnings component from below-the-line items) are impounded in stock prices as long as the components are persistent. Chen and Wang (2004) further explained the reason that stock prices impound special items as well as recurring earnings as being that, in China's unique institutional environment the majority shareholders of listed firms are SOEs. Chinese investors place a higher valuation weight on below-the-line items, because SOEs are able to improve their bottom line earnings through such items whenever they need. That is, it is easy for state-owned unlisted parent firms to arrange nonoperating transactions to boost their listed subsidiaries' earnings through below-the-line items.

To compare the differnce of earnings value relevance under different accounting regimes in China, Chen *et al.* (2001) investigated value relevance in the A-share market as compared to the B-share market,[57] finding that accounting information is indeed value relevant in China's domestic market. Whilst Sami and Zhou (2004) examined whether there is was a difference in the earnings value relevance under the old Chinese GAAP for A-share firms and IFRS for B-share firms. They elicited that the accounting information in the B-share market under IFRS is more value relevant than it was in the A-share market under the old Chinese GAAP. Liu and Liu (2007) also investigated the difference of value relevance of accounting information in China's different stock segments by bringing H-share firms into their study. They similarly found that accounting information is value relevant in the different stock market segments and that it is more so in the B- and H-share markets (with accounting

[57] The definitions of A, B and H shares in China can be found in Chapter 2: Institutional Setting.

under IFRS) than in the A-share market. Lee *et al.* (2013) found that IFRS convergence significantly improved the value relevance of A-share firms' accounting information.

In terms of SSSR , Liao *et al.* (2014) examined its privatisation effect on SOEs' fundamental performance. They elicited that the output, profit, and employment increased after SSSR, especially for SOEs, whilst corporate governance and operating efficiency remained unchanged. They suggested that the improved performance of SOEs was due to the boosted stock market incentives by government agents who operate or control SOEs. They benefitted from the increasing of market values of state owned shares, so the government and the public investors became better aligned after SSSR. Hou *et al.* (2012) examined whether SSSR has improved the SOEs' share price informativeness by enhancing corporate transparency. They found improved share price informativeness among those firms that were more sensitive to the impact of the reform. Both studies' outcomes suggest that SOEs' market performance improved after SSSR, one focusing on boosted stock market incentives, the other on information transparency. The findings are at variance with the suggestion of Wu and Patel (2015) that the boosted stock market incentives would lead to more market price manipulation, and that empirical findings need to be interpreted carefully.

There has been no study; however, taking into consideration the timing between SSSR and IFRS adoption in China. The abovementioned studies neglected the joint impact of IFRS adoption and SSSR on earnings quality by simply separating time into two segments: pre- and post-2007 or pre- and post-2005. Lee *et al.* (2013) researched the value relevance of earnings quality under the impact of China's adoption of IFRS-converged CAS and found that it improved after this implementation. In their paper; however, they failed to consider the impact from SSSR around the same period. The simple separation between pre-2007 and post-2007 to investigate the impact of IFRS adoption in China ignores the boosted stock market incentives and possible outcome of improved market efficiency resulting from SSSR completion. As a consequence, the findings are questionable as they are susceptible to variable bias. Conversely, studies investigating the impact of SSSR on earnings quality by separating the times into pre- and post-2005 neglect key transitions: completion of SSSR negotiations at the end of 2006; practical tradability of previous non-tradable shares after the end of 2008; and the impact of IFRS convergence from 2007 on earnings quality. The current

study is designed to test earnings quality under the impact of China's mandatory adoption of IFRS-converged CAS in 2007 together with the impact of non-tradable shares reform from 2004 to 2009. As such, this is the first study to investigate earnings quality explicitly in the context of both reforms in China. The objective of this chapter is to examine the impact of IFRS convergence and the SSSR on earnings value relevance. To achieve this objective, the research questions addressed in this chapter are:

Was there a change in earnings value relevance through the phases of the non-tradable shares reform and in the transition from the old Chinese GAAP to IFRS-converged CAS?

Was there a change in the earnings response coefficient through the phases of the non-tradable shares reform and in the transition from the old Chinese GAAP to IFRS-converged CAS?

8.3 Hypothesis development

Following the previous chapters, in which earnings quality was investigated in terms of accruals quality, earnings persistence and timeliness, this chapter tests whether value relevance is enhanced after both of China's stock market and accounting standards reforms. Lee *et al.* (2013) found that IFRS adoption significantly improved the value relevance of earnings among A-share firms, and concluded that the change of earnings quality from pre- to post-IFRS was due to the change of accounting regulation: IFRS adoption significantly increased earnings value relevance in China. Their study extensively considered the institutional issues, i.e. unbalanced regional development and the nature of major shareholders' ownership structure under China's circumstances. They did not, however, refer to the impact of SSSR on earnings value relevance. Most firms finished negotiation of SSSR at the end of 2006 and only A-share listed firms were subject to it, so the majority of Lee *et al.* (2013) sample was subject to the non-tradable share reform.

For this study the impact of both IFRS-converged and SSSR is considered, with the period being divided into three overlapping sub-periods: (i) pre-IFRS convergence, with the arrival of the first phase of SSSR (2003-2006); (ii) adoption of IFRS-converged CAS, and transition from the first to the second phase of SSSR (2005-2008); and (iii) the completion of

SSSR in the post IFRS convergence period (2007-2010). This in order compare any changes in earnings value relevance with or without the impact of IFRS adoption and under the impact of SSSR in its different stages.

Whether or not a change in accounting regulation, in particular, IFRS convergence, plays a determinant role in earnings quality is contested (Horton *et al.*, 2013; Ahmed *et al.*, 2013; Capkun *et al.*, 2012; Jeanjean and Stolowy, 2008; Barth *et al.*, 2008). In terms of Chinese accounting standards, the old Chinese GAAP was rule-based and employed historical cost methods for preparing financial accounting information. After the mandatory adoption of principle-based IFRS-converged CAS, the major change was the use of fair value accounting. For example, under the old Chinese GAAP, a minority's proportional interest was recognised at the carrying value of an acquiree's identifiable assets and liabilities, whereas under IFRS-converged CAS, the minority's proportion interest was in the fair value of the acquiree's identifiable assets and liabilities. As another example, subsequent measurement of investment property was at fair value, whereas this model was not permitted under the old GAAP. The movement towards fair value accounting from historical-cost accounting was expected to result in financial statements being more relevant, timely and transparent.

A second substantial change is that IFRS-converged CAS required more extensive information disclosure. Under the old Chinese GAAP, there was no requirement to disclose related party transactions in the financial statements of a parent company, which were provided together with the consolidated financial statements. IFRS-converged CAS; however, requires such related party transaction information disclosure. Given the emphasis on the use of fair value and greater disclosure requirements prescribed under IFRS adopted CAS, it is predicted here that the new accounting standards in China would tend, *ceteris paribus*, to increase the value relevance of accounting information and better facilitate investors' decision making.

After SSSR, all shares became tradable, thus awakening managers' stock market incentives and improving market efficiency. The difference between tradable and non-tradable shares was eliminated, and there was greater liquidity after shares are all tradable in the stock market after 2008 (Ma *et al.*, 2018; De Bondt *et al.*, 2011). Before the SSSR, the majority of shares were non-tradable – contrary to the notion of a free market – and stock

prices were influenced by the small portion of tradable shares held by minority shareholders with speculative incentives (often following news of political developments). By the end of 2006, 98% of firms had reached agreement on completing the SSSR reform. However, the non-tradable shares remained in lock in for 24 months before becoming actually tradable on the financial market. So, it was only after the end of 2008 that the volume of actually tradable share increased on the stock market.[58] Hence, at that time, the earnings would have been expected to have an increased relevance level to all outsider investors, rather than just holders of tradable shares. Given the discussion above, this study involves testing the impact of both reforms through three phases with three hypotheses as follows (explained in detail in the subsequent paragraphs):

H8.1: In the first phase of SSSR, the association between earnings and share prices will strengthen (increase) and share prices will fall.

The findings from Chapter 5 suggest that the incentive to drive down earnings had been acted up by managing earnings downwards in the first phase of SSSR, leading to reduced earnings quality. In the context of an illiquid and inefficient share market in this period, with an incentive for managers to drive down share prices through downward earnings management, the association between earnings and share prices is predicted to increase while the level of prices decreases alongside decreasing earnings.

H8.2 In the second phase of SSSR, the association between earnings and share prices will strengthen (increase) and share prices will rise.

The findings from Chapter 5 also suggest that the incentive to drive up earnings had been acted upon by managing earnings upwards in the second phase of SSSR, leading again to reduced earnings quality. Again, in the context of an illiquid and inefficient market, with an incentive for managers to drive up share prices through upward earnings management, the association between earnings and share prices is predicted to increase while the level of prices increases alongside increased earnings.

[58] Details of SSSR can be found in Chapter 2: Institutional Setting of China,

H8.3 In the third phase of SSSR, the association between earnings and share prices will weaken (decrease) and share prices will fall.

The findings from Chapter 5 in the third phase of SSSR indicate that the incentive to drive down earnings had been acted upon by managing earnings downwards, again reducing earnings quality. In this phase, however, the trading restrictions on previously non-tradable shares are gone, and so the level of liquidity in and efficiency of the market improves. Here, in the context of an increasingly liquid and efficient market, share price is less manipulatable via earnings management. This study predicts, therefore, that the association between earnings and share prices is decreased in the final phase of the SSSR implementation.

The key methodological issue is whether or not improved earnings value relevance indicates an enhanced accounting quality after China's IFRS adoption and SSSR. In this context, increasing value relevance is not susceptible to traditional interpretation.

The objective of non-tradable share reform was to transform non-tradable shares into tradable ones so as to solve the problems of capital shortage in SOEs; to promote the governance quality and marketability of SOEs; and to allow for the allocation of capital raised from the stock market to the SOEs' government funds (Yang et al., 2015). The reform was strongly driven by the incentives of government agents to boost SOEs' financial performance, with a governmental expectation of be able to stimulate improvement their operating efficiency without fundamentally changing their ownership structure (Firth *et al.*, 2010). Non-tradable share reforms had been attempted several times without success. After the earlier failures, the State Council suggested that reform should respect market rules, and exercise diligence in protecting investors' rights and interests. Accordingly, SSSR included provision for negotiation of compensation to mitigate the impact on the holders of tradable shares of a large increase in the tradable share supply.

Based on the phases of SSSR implementation, for this study, the data are divided into three overlapping sub-periods (please refer to Table 8.1, which is Table 1.1 reproduced below for convenience). The first is from 2003 to 2006, which was free from the impact of China's IFRS adoption in 2007 and includes, in 2005-2006, the negotiation period in which compensation for the holders of non-tradable shares was determined. It is predicted that, in

this negotiation period, managers had the incentive to drive down share price, so that SOEs minimised the compensation they were obliged to pay to external shareholders. The second sub-period is from 2005 to 2008, which included transition from the SSSR negotiation period to a post-negotiation lock-in period as well as, in parallel, the transition to IFRS-converged CAS. Compensation agreements were reached for most SOEs by the end of 2006, after which non-tradable shares remained non-tradable for 24 months until the end of 2008 (the lock-in period). During this lock-in period, managers had the incentive to drive up share prices, so that SOE received the maximum amount from sale of shares once the lock-in period ended. The final sub-period is from 2007 to 2010, containing the transition, in a post-IFRS context, from the lock-in period to all A-shares freely being tradable in the market. In the post lock-in period, once (some) previously non-tradable shares had been sold, managers had incentives to drive down the share price again, so that SOEs could buy back shares at a lower price than that at which they were sold, thereby creating gains whilst maintaining (or re-establishing) government ownership levels.

If the above hypotheses are borne out, then improved earnings value relevance around the first two phases of the SSSR implementation resulted from management incentives to manage earnings and making sure that earnings figures were reflected in the stock market. Accordingly, stock price would have declined during 2005-2006, rise again from 2007-2008, and declined after early 2009. As found in earlier chapters, tested, accounting based earnings quality declined during the study period. Hence, improved association of earnings and share prices is not evidence that earnings quality is enhanced, but rather, evidence of success in efforts to have manipulated earnings reflected in market prices.

Table 8.1: SSSR phases and related management incentive predictions

(Table 1.1 reproduced here for convenience)

SSSR		IFRS	
2004 and before	Pre-SSSR implementation	2006 and before	Pre-IFRS period
2005-2006	SSSR phase 1: negotiation period. Managers had the incentive to drive down share price, so that the local SOE hierarchy minimised the compensation it was obliged to pay to external shareholders		
2007-2008	SSSR phase 2: lock-in period: managers had incentives to drive up share prices, so that local SOE hierarchy received the maximum amount from sale of shares once the lock-in period ended	2007-2010	Post-IFRS-convergence: Possible influences: (i) EQ-increasing impact of IFRS in general, albeit not universal; (ii) EQ-decreasing under the impact of IFRS-convergence in China: weak legal enforcement, strong management incentives, lack of (minority) investors' protection, heavy government intervention, not a full adoption of IFRS
2009-2010	SSSR phase 3: post lock-in period and post-sale of SOE shares. Managers had the incentive to drive down share prices, so that the local SOE hierarchy could buy back shares at a lower price than that at which it sold them, thus creating a gain		

8.4 Research method

Francis and Schipper (1999) suggested that the stronger association between accounting numbers and stock price reflects a higher value relevance of accounting information. In line with this, value relevance is defined as the association between accounting numbers and share prices and returns. Both a price model and the earnings response coefficient (ERC) are employed for value relevance analysis.

8.4.1 Empirical models

Following the prior research reviewed in Chapter 4, for this study, firstly the Ohlson (1995) price valuation model is employed, as follows:

$$P_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BVPS_{it} + \varepsilon_{it} \qquad (8.1)$$

where, P is per share price three months after the year end[59], EPS is earnings per share and BVPS is book value per share. All three variables are scaled by year opening share price.

Given the setting and objectives of this study, intercept and slope dummy variables are employed to determine the relationship between regulatory reforms and the association between accounting numbers and market prices. Thus, Model (8.1) is modified as follows:

$$P_{it} = \beta_0 + \beta_1 DUM + \beta_2 EPS_{it} + \beta_3 EPS_{it} * DUM + \beta_4 BVPS_{it} + \beta_5 BVPS_{it} * DUM + \varepsilon_{it} \qquad (8.2)$$

where, DUM represents dummy variables SSSR1 (model estimated from 2003-2006), IFRS_SSSR2 (model estimated from 2005-2008) and SSSR3 (model run for 2007-2010) in turn. These dummy variables are used to capture change in regime within the three overlapping time periods described above. The dummy variables are defined as follows, whilst their use is summarised and explained in previous Table 5.2. SSSR1 = 0 for 2003, 2004 and = 1 for 2005, 2006, whilst IFRS_SSSR2 = 0 for 2005, 2006, = 1 for 2007, 2008. SSSR3 = 0 for 2007, 2008; = 1 for 2009, 2010.

Panel data firm fixed effect estimators with heteroscedasticity-robust standard errors are applied to estimate Model (8.2). The model examines the extent to which share price can be explained by earnings and book value of equity. The coefficients β_2 and β_4 capture base-case sensitivity of share price to earnings and book value, whilst the coefficient β_3 and β_5 capture the impact of movement through the SSSR implementation phases and IFRS adoption on the relevance of earnings and book value of equity.

[59] For prior research, stock prices [returns] six months after the year end have been adopted [18 month returns] (Harris et al. 1994), five months after the year end [17 month returns] (Bartov et al. 2001) and three months after the year end [15 month returns] (Francis and Shipper 1999). Kothari and Sloan (1992) first proposed the calculation of returns by using the overlapping period based on the notion that prices lead earnings, and so return calculations with overlapping periods can provide stronger results. For this study, stock prices [returns] three months after the year end [15 month returns] are used as the principal measures.

Further, there is investigation of the earnings response coefficient (ERC) for value relevance (or 'returns relevance'). Following Harris *et al.* (1994) and Lev and Zarowin (1999), the basic ERC model is as follows:

$$R_{it} = \alpha_0 + \alpha_1 EPS_{it} + \alpha_2 \Delta EPS_{it} + \varepsilon_{it} \qquad (8.3)$$

where, R_{it} is 15 month return to three months after the year, including both dividend and capital gains end adjusted by the dividend, $\frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$; EPS is earnings per share deflated by year opening share price; and ΔEPS_{it} is the change in EPS deflated by year opening share price. Model (8.4) examines the association between stock returns and the level and change in level of earnings: a stronger association suggests that earnings and the market/investors are 'more similarly' reflecting events and stimuli; and, given the use of 15 month returns, that earnings are better being reflected in market prices. The sum of $(\alpha_1 + \alpha_2)$ reflects the average change in the stock price associated with a dollar change in earnings (Lev and Zarowin (1999). Lev and Zarowin (1999) suggested that a low slope coefficient refers to a low response from the market to reported earnings and implies that investors believe reported earnings are possibly transitory or manipulated. A large change in stock price associated with reported earnings reflects investors believing that reported earnings are accurate and permanent. Hence, a low slope coefficient implies low informativeness of reported earnings, whilst a high slop one reflects high informativeness of reported earnings.

To simplify the interpretation of the model output, Model (8.3) is rearranged as follows:

$$R_{it} = \alpha_0 + \alpha_1 EPS_{it} + \alpha_2 (EPS_{it} - EPS_{it-1}) + \varepsilon_{it} \qquad (8.3.1)$$

$$\Rightarrow R_{it} = \alpha_0 + \alpha_1 EPS_{it} + \alpha_2 EPS_{it} - \alpha_2 EPS_{it-1} + \varepsilon_{it} \qquad (8.3.2)$$

$$\Rightarrow R_{it} = \alpha_0 + (\alpha_1 + \alpha_2) EPS_{it} - \alpha_2 EPS_{it-1} + \varepsilon_{it} \qquad (8.3.3)$$

So, Model (8.3) can now be written as:

$$R_{it} = \alpha_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it-1} + \varepsilon_{it} \qquad (8.4)$$

In Model (8.4), β_1 is $(\alpha_1 + \alpha_2)$ from Model (8.3), which is the coefficient Lev and Zarowin (1999) used for ERC; β_2 from Model (8.4) is $(-\alpha_2)$ in Model (8.3). By directly using Model (8.4), β_1 is directly tested as the ERC, with a higher β_1, under conventional interpretation, reflecting higher informativeness of reported earnings. In expression 8.3, standard expectations would be that both α_1 and α_2 are positive. Hence, in 8.4, $\beta_1 = \alpha_1 + \alpha_2$ would be expected to be positive and $\beta_2 = -\alpha_2$ would be expected to be negative.

For this study, Model (8.4) is modified to incorporate a dummy intercept and slope variables:

$$R_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it-1} + \beta_3 DUM + \beta_4 EPS_{it} * DUM + \beta_5 EPS_{it-1} * DUM + \varepsilon_{it} \qquad (8.5)$$

where, DUM represents dummy variables SSSR1 (model estimated for 2003-2006), IFRS_SSSR2 (model estimated from 2005-2008) and SSSR3 (model run for 2007-2010) in turn.

Both the price and ERC model for earnings value (returns) relevance analysis are included in order to examine the impact of SSSR implementation and IFRS convergence. Regressions are run as panel estimations with fixed effects.[60]

8.4.2 Data

The data collection has been extended from that described in Chapter 5. Since this Chapter investigates the earnings value relevance, financial firms, utility firms and construction firms are all included in the sample. Table 8.3 shows the definition of the extra variables used in the earnings value relevance analysis, whilst all other variables deployed are as defined in Chapter 5.

[60] This is after appropriate testing as to the correct form for estimation, with pooled ordinary least squares and panel estimation with random effects being found in all cases to be inappropriate. STATA 'testparm' is used for the Hausman test as regards time fixed effects or random effects. Results for the both value relevance and ERC models (for each of the three overlapping sub-periods) yield Prob>F=0.000, so the null that the coefficients for all years are jointly equal to zero is rejected and time fixed-effects are needed.

Table 8.2: Definition of variables

P	P is per share price three months after fiscal year end
EPS	Earnings per share at fiscal year end
BVPS	Book value per share at year end
Return	15-month return to three months after the year end, subsuming capital gain and dividend(s)
ΔEPS	Change of earnings per share from year *t*-1 to *t*

8.5 Results

The following three subsections, 8.5.1, 8.5.2 and 8.5.3, provide a comprehensive and detailed report on the data and results – both univariate and multivariate regression ones. Subsection 8.5.4 then highlights and discusses the key results.

8.5.1 The pattern of value relevance and ERC

Figure 8.1 shows that share prices, on average[61], do not appear to be positively associated with earnings per share over the period 2003-2010. Indeed, mean price and mean EPS move in opposite directions as often as they move in the same direction. The graph suggests that the average firms' share prices in the Chinese stock market performed better in the post-2007 period, and even at the lowest point in 2009, the average share price was higher than the highest average price before 2007, in 2004. The average earnings per share increased to its highest point in 2007 and then reversed in 2008. The changes of share price in testing period are consistent with the predictions that firstly, there was an incentive to drive down the share price at phase one during the negotiation period and then, there was an incentive to drive up the share price at phase two during the lock-in period. Finally, there was an incentive to drive down the share price at phase three after the lock-in period.

[61] The means of share price in Figure 8.1 refer to the change of aggregated means during the testing period and clearly, they have different nominal values, representing different proportions of ownership of different firms. Figure 8.2 focuses on returns rather than the prices.

Figure 8.1: The pattern of share price and EPS in Chinese A-share firms

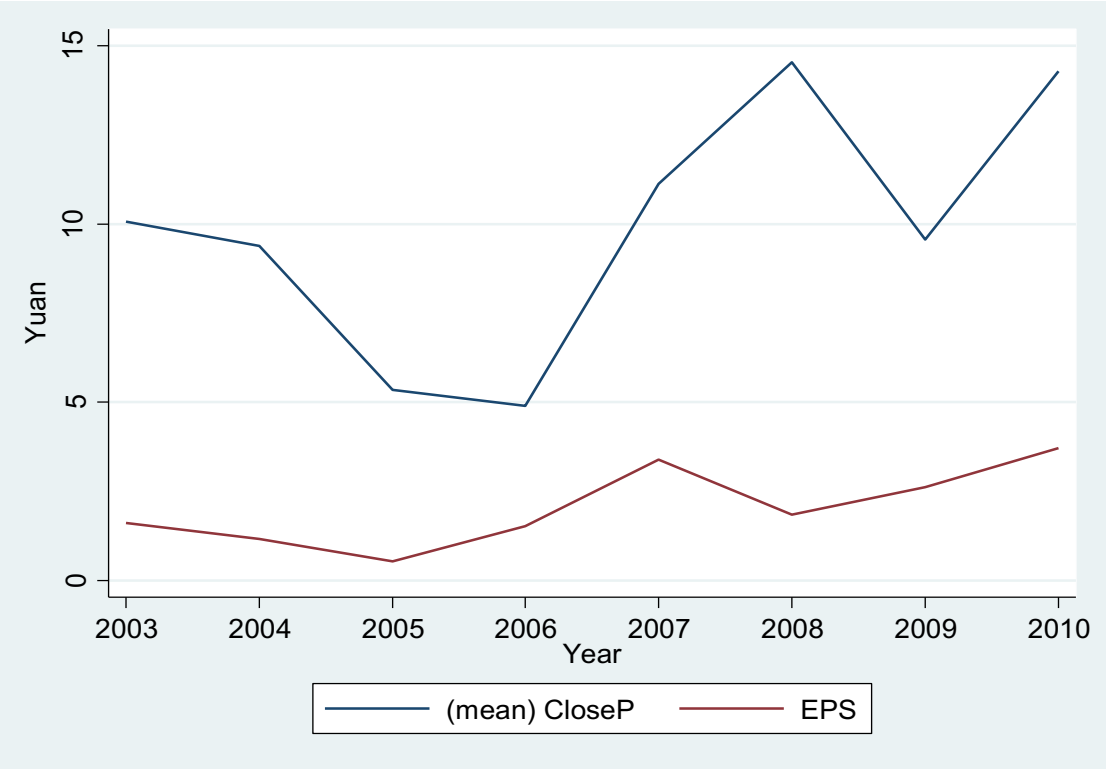
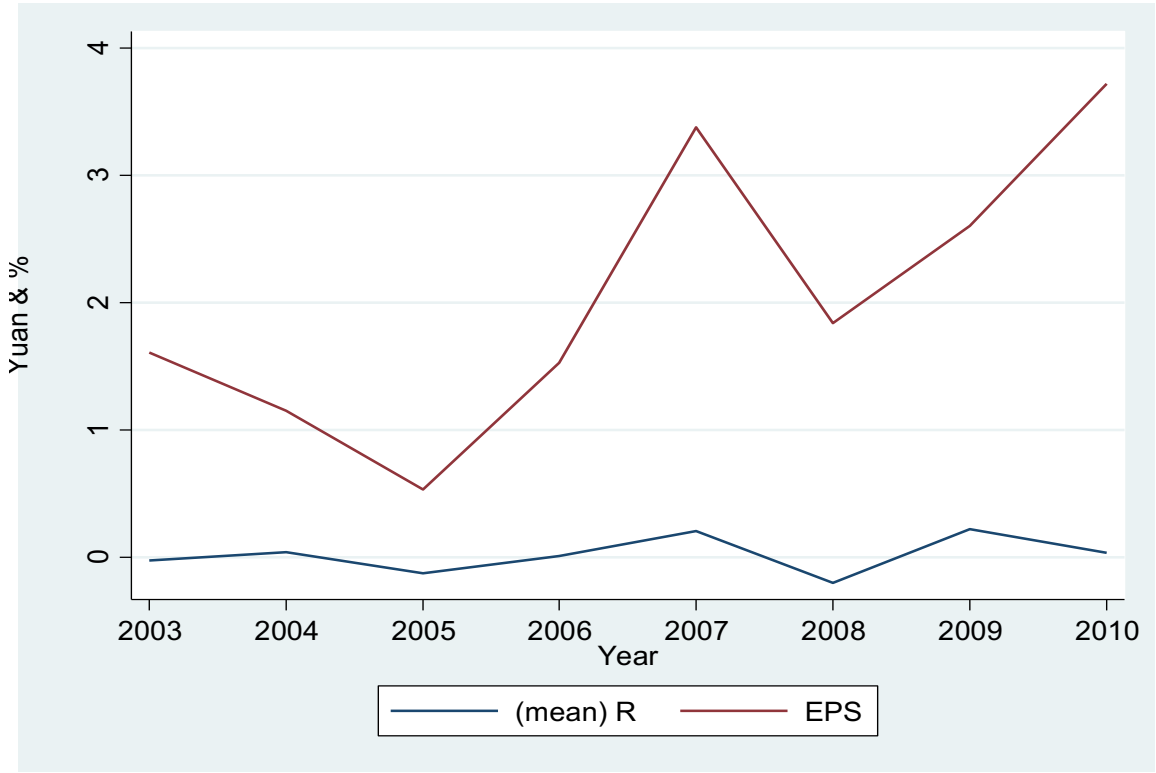


Figure 8.2 shows the pattern of market returns and earnings per share. It seems that the mean of market returns was better (positively) associated with mean earnings per share from 2004-2008 than was the mean price. The market return reached its highest point when the share price was its lowest, in 2009. This is consistent with assumption that non-tradable shareholders gained high returns after the shares first became tradable by selling high and repurchasing low to benefit themselves[62]. After all the shares transited to tradable, pre-non-tradable shareholders, as the majority controlling shareholders with their appointed managers, had manipulative powers to benefit the group they represented. If this was the case, they had strong incentive to drive up or down the share prices to increase their equity returns.

[62] Returns are calculated over 15 months to three months after the year end.

Figure 8.2: The pattern of market returns and EPS in Chinese A-share firms



8.5.2 Univariate analysis

Table 8.4 represents the summary statistics of the variables used in the earnings value relevance and ERC estimations. Table 8.1 and Table 8.2 clearly lay out the setting of the different phases in SSSR. SSSR phase 1, the negotiation period from 2005 to 2006; phase 2, the lock-in period from 2007 to 2008; and phase 3, the free trading of previously untradeable shares. From the pre-SSSR period to phase 1 negotiation period, the mean of share prices significantly decreased from ¥9.663 to ¥5.339 (significant at -4.324***[63]). From phase 1 to phase 2 of SSSR, there was a dramatic increase in mean of share price to ¥14.211 (significant at 8.872***), which is consistent with the Figure 8.1 the mean of share prices experienced a large increase from 2006 to 2008. From SSSR phase 2 to phase 3, the mean of share prices increased just from ¥14.211 to ¥14.860 (0.649**[*]).

[63] In the interests of brevity, the notation *** represents significance at the 1% level; ** significance at the 5% level; and * significance at the 10% level. If (some) significance 'stars' are placed in square brackets (e.g. [*]), they represent improved significance, if a one- rather than two-tailed test was adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described ,is simply in order to convey completely the nature of the significance.

Table 8.4 shows that the Chinese stock market experienced a dramatic boost straight after IFRS adoption and transition to the second phase of SSSR, which was not the case pre-IFRS adoption. Moreover, average share price reached its lowest point after SSSR was announced and during its first phase: the negotiation period. In this period, it was predicted that managers would have an incentive to manage earnings and share prices downward. The significant decline in share price (-4.324***), from pre-SSSR1: 2003-2004 to the first phase of SSSR: 2005-2006, supports this prediction.

After transition from the phase 1: negotiation period to phase 2: lock-in period, it was predicted that managers would have the incentive to manage earnings upwards. Table 8.4 reveals that average share price significantly increased 8.872***. It was further predicted that share prices would then fall in phase 3 after the end of the lock-in period. Table 8.4 shows a significant drop of share prices 0.649***, which is at consistent with the prediction. As can be seen in Figure 8.1, average share price declined dramatically in 2009.

Given the close alignment of the univariate data with expectations, it appears that the changes seen in market- and accounting-based performance relate principally to reform of the regulatory environment, rather than any fundamental change in economic conditions facing listed firms over the period of this study.[64] The focus moves on now to testing the association between the reforms, share prices and earnings by estimation within a multivariate framework.

[64] Recall also China's remarkable insulation from the effects of the global financial crisis – maintaining GDP growth at well above 9% from 2008 to 2009.

Table 8.3: Chapter summary statistics

	Pre-SSSR1 (2003-04)				Phase 1 (2005-06)				Phase 2 (2007-08)				Phase 3 (2009-10)			
	Mean	**Median**	**St Dev**	**Obs**	**Mean**	**Median**	**St Dev**	**Obs**	**Mean**	**Median**	**St Dev**	**Obs.**	**Mean**	**Median**	**St Dev**	**Obs**
P	9.665	8.59	4.242	2465	5.339	4.340	3.766	2649	14.211	10.785	11.642	2804	14.860	11.02	13.342	3299
R	-0.060	-0.099	0.264	1186	-0.248	-0.308	0.310	2454	0.815	0.615	0.926	2536	0.157	0.039	0.605	2977
EPS	0.125	0.149	0.633	2611	0.131	0.141	0.583	2781	0.310	0.233	0.725	3111	0.402	0.311	0.554	3857
BVPS	3.014	2.938	1.797	2611	2.853	2.828	1.936	2781	3.317	3.055	2.428	3111	4.183	3.455	3.321	3857
$\boldsymbol{EPS_{t-1}}$	0.137	0.138	0.527	2531	0.098	0.137	0.693	2701	0.290	0.217	0.565	2959	0.283	0.223	0.701	3442

This table presents summary statistics of variables used in the earnings value relevance analyses (mean, median, standard deviation and the number of observations. All variables are as previous defined. The control variable definitions and summary statistics are presented in Table 5.1 and 5.5, respectively, in chapter 5.

8.5.3 Regression results – detailed report

This subsection provides a comprehensive report on the results, whilst the next one draws out and discusses the key ones. Chinese firms' performance has historically been measured based entirely on their profitability. The adoption of fair value measurement and other accounting changes with IFRS convergence, together with increased market liquidity after SSSR, might, in a conventional setting, be expected to lead to an increase in earnings value relevance. The phasing of SSSR, however, is key here and hence, this is separated into: (i) pre-SSSR, pre-IFRS convergence; (ii) SSSR phase 1 (negotiation phase), still pre-IFRS convergence (with associated dummy variable SSSR1); (iii) SSSR phase 2 (lock-in phase) and IFRS convergence (with associated dummy variable IFRS_SSSR2); (iv) SSSR phase 3 (SSSR complete, free trading of previously non-tradeable shares), post-IFRS-convergence (with associated dummy variable SSSR3).

Pre-SSSR to SSSR phase 1: 2003-2006

Over the period 2003-2006, there was no impact from a change of accounting standards: IFRS-converged CAS came into force with effect from 2007. The first column of Table 8.4 presents the results of the estimation of value relevance Model (8.2) based on firm-year observations from 2003 to 2006. The second and third columns of Table 8.4 show the results of the estimation performed separately for Non-ST firm-years and ST firm-years, whilst the fourth and fifth columns of the Table 8.4 provide those for the estimation performed separately for Non-SOE firm-years and SOE firm-years. The estimated coefficients on SSSR1 as an intercept dummy and its interactions as a slope dummy reveal the impact of firms embarking upon the first phase of SSSR, i.e. the negotiation phase.

From the base case (2003-2004) estimation in the first column of Table 8.4, earnings (EPS) are negatively and significantly associated with share price (-0.320***), so the higher the earnings the lower the share price; and equity book value (BVPS) is positively related with share price (0.55***). The result on BVPS is as expected, but that on EPS is contrary to what would conventionally be expected. In the Chinese 2003-2004 setting, however, it is consistent with the market being illiquid and inefficient, and there being little incentive for managers to communicate to inform/correct share prices.

The estimated coefficient on SSSR1 (-4.564***) shows significant reduction in share prices after the transition to the first (negotiation) phase of the SSSR. At the same time, there is a significance increase the association between earnings and share price, 'earnings value relevance', the estimated coefficient SSSR1xEPS being 0.607***. These results support hypothesis H8.1, being consistent with management driving down earnings and share prices in the first phase on SSSR implementation in China's illiquid and inefficient financial market. The estimated coefficient on SSSR1xBVPS is not significant. For the SSSR negotiation phase (2005-2006), the estimated aggregate coefficient on earnings (coefficient on EPS plus that on SSSR1xEPS) is significant and positive, being 0.287*** (as set out in summary Table 8.10), confirming the establishment of a conventional link between earnings and prices in that phase. Whilst the estimated aggregate coefficient on book values remains positive and significant, being 0.581*** (Table 8.10).

The second to fifth columns of Table 8.4 reveal that the foregoing result as regards significant reduction in share price during SSSR phase 1, holds for firms whether they are Non-ST or ST as well as whether they are Non-SOE or SOE. Similarly, regarding the result of base case estimation of the coefficient on BVPS, this is significant and positive. Moreover, the estimated aggregate coefficient on book values remains positive and significant after during phase 1 of SSSR. For the estimated coefficients on EPS in the base case, the foregoing result of negative and significant is repeated for ST, Non-SOE and SOE firms, while that for Non-ST firms is insignificant. The result as regards the estimated coefficient on SSSR1xEPS, positive and significant, is repeated both for Non-ST firms and for SOEs, whilst the coefficient is insignificant, albeit positive, for ST and Non-SOE firms.

Table 8.4: Estimations of the value-relevance model (Model 8.2): firm years 2003-06

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
EPS	-0.320***	0.283[*]	-0.461***	-0.376**[*]	-0.265*[*]
	(0.112)	(0.267)	(0.124)	(0.170)	(0.153)
BVPS	0.590***	0.511***	0.736***	0.731***	0.478***
	(0.060)	(0.081)	(0.089)	(0.096)	(0.078)
SSSR1	-4.564***	-4.654***	-4.540***	-4.617***	-4.578***
	(0.151)	(0.215)	(0.209)	(0.252)	(0.189)
SSSR1*EPS	0.607***	1.385***	0.081	0.067	1.193***
	(0.158)	(0.294)	(0.183)	(0.242)	(0.214)
SSSR1*BVPS	-0.009	-0.038	-0.126	-0.102	0.012
	(0.049)	(0.068)	(0.078)	(0.084)	(0.061)
Constant	8.102***	8.422***	7.186***	8.190***	8.206***
	(0.183)	(0.264)	(0.210)	(0.280)	(0.242)
Observations	5,107	3,822	1,285	1,738	3,369
R-squared	0.340	0.338	0.439	0.322	0.362

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance.

Arrival of IFRS-converged CAS and transition from phase 1 to phase 2 in the SSSR: 2005-2008

In this sub-period, there was a concurrent transition to IFRS-converged CAS and from phase 1 (convergence) to phase 2 (lock-in period). From the beginning of 2007, when IFRS-converged CAS came into force, non-tradable shares remained untradeable (locked in) for two years. Over this lock-in period, management group had the incentive to drive the share prices upwards, in order to be able to sell high when the non-tradeable shares became tradeable.

The first column of Table 8.5 shows that in the base case, again, EPS is significantly and negatively associated with share price, the estimated coefficient on EPS being -2.002***, while here the estimated coefficient on BVPS, albeit positive, is not significant. In the transition from phase 1 (negotiation) to phase 2 (lock-in) of the SSSR, contemporaneous with IFRS-converged CAS coming into force, there is a significant increase share prices, as evidenced by the estimated coefficient on the IFRS_SSSR2 dummy at 4.579. At the same time,

the association between earnings and price is significantly strengthened, with an estimated coefficient for IFRS_SSSR2xEPS at 4.249***; whereas that between book value and price, namely IFRS_SSSR2xBVPS is estimated at 0.662***. Hence, during the second phase of the SSSR implementation, and with IFRS adoption, there is evidence of both increasing market prices and continued strengthening of the association between earnings and prices (earnings value relevance) and that between book values and prices, which supports hypothesis H8.2. This is consistent with management driving up both earnings and share prices in the second phase of SSSR implementation in China's illiquid and inefficient financial market, and as predicted by the incentives introduced by the SSSR implementation process. It cannot be asserted, however, that the results are driven entirely by SSSR-related incentives and actions. There is the concurrent arrival of IRFS-converged CAS, which may well have an effect. Evidence on the impact of IFRS adoption internationally is mixed, and China's convergence with IFRS was far from being full adoption, so the magnitude of the boost to the earnings/price and earnings/book value associations resulting from IFRS should be viewed with caution given the simultaneous of the SSSR. They cannot, however, fully be discounted; and it must be concluded that the results here are produced by a joint SSSR- and IFRS-related effect.

In the post IFRS-convergence/SSSR lock-in phase (2007-2008), the estimated aggregate coefficient on earnings is significant and positive, being 2.247*** (as set out in summary Table 8.10), whilst the estimated aggregate coefficient on book values becomes significant at 0.693*** (Table 8.10), thereby confirming the strengthening of a conventional link between earnings and prices in that phase. As regards Non-ST versus ST firms and Non-SOE versus SOE firms, the second to fifth columns of Table 8.5 are relevant. The foregoing 2005-2006 base case results of a significantly negative estimate of the coefficient on EPS and a significantly positive coefficient on BVPS are borne out in the sub-divided estimation samples, except in that the estimated coefficient on BVPS for Non-ST firms is insignificant. The result of a significant increase of prices, as between the pre IFRS-convergence/SSSR phase 1 period and the post IFRS-convergence/SSSR phase 2, is repeated across Non-ST, ST, Non-SOE and SOE firms taken separately, as is the strengthening of the relationship between book values and prices. This is largely the case also regarding the association between earnings and prices, except that the estimated coefficient on IFRS_SSSR2xEPS for ST firms is insignificant

The results presented in Tables 8.4 and 8.5 suggest that the impact of the 2007 transition (IFRS convergence/move to SSSR phase 2) was more consistent/comprehensive, as regards earnings value relevance, than that of the 2005 transition (commencing the SSSR in the pre IFRS convergence period): the estimated coefficient for IFRS_SSSR2xEPS is positive and significant across four of the five columns of results in Table 8.5 – the exception being the estimation for ST firms.

Table 8.5: Estimations of the value-relevance model (Model 8.2): firm years 2005-08

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
EPS	-2.002***	-2.382***	-0.668***	-1.500***	-2.057***
	(0.273)	(0.503)	(0.162)	(0.317)	(0.417)
BVPS	0.031	-0.046	0.854***	-0.447***	0.331**
	(0.112)	(0.150)	(0.103)	(0.136)	(0.162)
IFRS_SSSR2	4.579***	3.859***	4.875***	5.012***	4.111***
	(0.297)	(0.433)	(0.204)	(0.352)	(0.438)
IFRS_SSSR2*EPS	4.249***	8.534***	-0.223	3.085***	5.913***
	(0.338)	(0.531)	(0.253)	(0.396)	(0.508)
IFRS_SSSR2*BVPS	0.662***	0.437***	0.213**[*]	0.500***	0.649***
	(0.095)	(0.135)	(0.088)	(0.115)	(0.139)
Constant	6.088***	7.248***	2.303***	8.089***	4.794***
	(0.332)	(0.483)	(0.180)	(0.385)	(0.493)
Observations	5,447	4,298	1,149	1,966	3,481
R-squared	0.340	0.414	0.431	0.213	0.425

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2 = 0 for 2005-2006; 1 for 2007-2008. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance.

Completion of the SSSR in the post IFRS-convergence period: 2007-2010

In this sub-period, SSSR is completed at the end of 2008. At this point, the SSSR lock-in period ends, and previously non-tradeable A shares became tradeable (what is called SSSR phase 3 in this research). At this point, there was no change in accounting standards, since IFRS-converged CAS came into force with effect from the beginning of 2007.

The first column of Table 8.6 presents the results of the estimation of value relevance Model (8.2) based on firm-year observations from 2007-2010. In the base case, the estimated

coefficients for both EPS and BVPS are significant and positive (being 0.415*[*] and 0.709***, respectively), which is what might conventionally be expected. The estimated coefficient on SSSR3 (-2.306***) shows significant reduction in share prices after the completion of the SSSR. At the same time, the association between earnings and prices significantly decreases (with an estimated coefficient of SSSR3xEPS at -1.400***), as does that between book values and process (-0.474*** estimated as the coefficient on SSSR3xBVPS). These results support hypothesis H8.3, being consistent with management driving down earnings and prices, but in an increasing liquid and efficient market, with a weakening association between earnings/book values with market prices. In the post-SSSR implementation period (2008-2010), the estimated aggregate coefficient on earnings is significant and negative at -9.8400**[*] (as set out in summary Table 8.10), consistent with the reversal/loss of a conventional link between earnings and price. Moreover, the estimated aggregate coefficient on book values remains positive and significant, but is reduced to 0.235*[*] (Table 8.10).

The second to fifth columns of Table 8.6 report estimations based on Non-ST versus ST firm-years and Non-SOE versus SOE firm-years. The foregoing 2007-2008 base case results for the EPS coefficient are not well duplicated: whilst the estimated coefficient on EPS for Non-ST firms is positive and significant, that for ST firms is negative and significant. In addition, there is weak significance in the (albeit positive) estimates for SOE firms and no significance in the estimates for Non-SOEs. As regards the estimated coefficients for BVPS, the results are consistent across all five columns. A significant drop prices occurs between SSSR phase 2 and SSSR phase 3, which is also repeated across Non-ST, ST, Non-SOE and SOE firms, when taken separately. For Non-ST firms and SOEs, the earnings/price and book value/price associations are weakened after 2008, consistent with the main results presented in the first columns. For ST firms, whilst the book value/price association fell significantly, as with the main result, the earnings/price association strengthened, but as with the base case, this was negative. For Non-SOE firms, again, the book value/price association fell significantly, as with the main result, but the change in the earnings/price association, albeit negative, was not significant.

Table 8.6: Estimations of the value-relevance model (Model 8.2): firm years 2007-10

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
EPS	0.415*[*]	2.576***	-0.857***	0.345	0.472[*]
	(0.247)	(0.423)	(0.173)	(0.313)	(0.405)
BVPS	0.709***	0.482***	0.791***	0.369**	1.003***
	(0.109)	(0.129)	(0.147)	(0.154)	(0.156)
SSSR3	-2.306***	-2.788***	-1.348***	-3.238***	-1.300***
	(0.336)	(0.457)	(0.262)	(0.497)	(0.455)
SSSR3*EPS	-1.400***	-2.813***	0.596*[*]	-1.059[*]	-1.189**[*]
	(0.433)	(0.599)	(0.319)	(0.742)	(0.553)
SSSR3*BVPS	-0.474***	-0.244*[*]	-0.506***	-0.589***	-0.576***
	(0.103)	(0.135)	(0.120)	(0.172)	(0.133)
Constant	11.969***	12.928***	7.588***	14.464***	10.025***
	(0.359)	(0.466)	(0.236)	(0.479)	(0.524)
Observations	4,354	3,560	794	1,716	2,638
R-squared	0.150	0.221	0.148	0.055	0.241

Based on firm-year observations 2007-2010 from Chinese listed firms. SSSR3 = 0 for 2007-2008; 1 for 2009-2010. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Notable amongst the many results presented in the three sub-periods above, and in Tables 8.4, 8.5 and 8.6, is that the change in the earnings/price association[65] for ST firms is less significant and/or contrary to the main results for all firms. This strongly suggests that management ability successfully to act on incentives to push earnings manipulation through into prices was reduced in respect of firms facing market listing issues.

Moving from value relevance on to earnings response models

2003-2006

The first column of Table 8.7 presents the results of estimation of earnings response Model 8.5 based on firm-year observations for 2003-2006. The second and third columns of Table 8.7 show the results of the estimation performed separately for Non-ST firm-years and ST firm-years, whilst the fourth and fifth columns of the table show those for the estimation performed separately for Non-SOE firm-years and SOE firm-years. As previously, the

[65] The estimated coefficients for SSSR1xEPS, IFRSxEPS and SSSR3xEPS.

estimated coefficients on SSSR1 as an intercept dummy and its interactions as a slope dummy reveal the impact of firms embarking upon the first phase of the SSSR (the negotiation phase). The coefficient estimated on EPS in the model is known as the earnings response coefficient (ERC), which is another important measure of earnings quality, which refers to the extent of decision usefulness of earnings in equity valuation (Dechow *et al.*, 2010).

According to the base case (2003-2004) estimation in the first column of Table 8.8, the ERC is significant and positive (coefficient estimated on EPS is 0.066***), as would conventionally be expected: an increase in earnings per share is associated with a higher equity return. But contrary to conventional expectations,[66] the estimated coefficient on lagged EPS is also positive and significant at 0.281***, which suggests that there was not a conventional relationship earnings/return relationship at this point. With the transition to the first phase of SSSR, the ERC is significantly increased (estimated coefficient on SSSR1xEPS is 0.054**), and the estimated coefficient on lagged EPS is significantly decreased (by -0.216***) – consistent with establishment of a more conventional link between earnings and market returns. Also, over this transition, the level of equity returns reduces significantly (the estimate coefficient on SSSR1 being -0.159***). These results add further support for hypothesis H8.1. The results in the second to fifth columns of Table 8.7 are qualitatively similar, except that: the estimated coefficients of EPS, albeit positive, are not significant for ST firms or Non-SOEs, whilst that for SSSR1xEPS is negative and significant for Non-ST firms and positive and insignificant for SOEs.

[66] See discussion regarding the development of Model 8.5.

Table 8.7: Estimations of ERC model (Model 8.5): firm years 2003-06

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
EPS	0.066***	0.417***	0.025	0.014	0.113***
	(0.017)	(0.054)	(0.018)	(0.022)	(0.026)
EPS_{t-1}	0.281***	0.352***	0.205***	0.214***	0.338***
	(0.029)	(0.047)	(0.041)	(0.037)	(0.042)
SSSR1	-0.159***	-0.137***	-0.165***	-0.134***	-0.168***
	(0.012)	(0.016)	(0.023)	(0.018)	(0.016)
SSSR1*EPS	0.054**[*]	-0.110**	0.048*[*]	0.087***	0.037
	(0.021)	(0.052)	(0.025)	(0.027)	(0.032)
$SSSR1*EPS_{t-1}$	-0.216***	-0.142***	-0.159***	-0.184***	-0.238***
	(0.031)	(0.053)	(0.044)	(0.040)	(0.045)
Constant	-0.105***	-0.209***	-0.117***	-0.141***	-0.102***
	(0.010)	(0.018)	(0.018)	(0.015)	(0.014)
Observations	3,725	2,788	937	1,251	2,474
R-squared	0.161	0.191	0.179	0.152	0.173

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance.

Lev and Zarowin (1999) suggested that a large change in stock price associated with reported earnings reflects investors' belief that reported earnings are accurate and permanent. Appendix 8.1 shows the results of estimation of the Lev and Zarowin (1999) model, Model (8.3) in this study, augmented with SSSR1 as an intercept and slope dummy. The estimated coefficient on reported earnings is 0.346*** for 2003-2004, but the declines to 0.161*** in phase 1 of SSSR. A conventional 'Lev and Zarowin (1999)' type interpretation would be that this suggests investors realised that earnings were being manipulated during the first phase of SSSR. The estimated negative and significant coefficient on ΔEPS in the base case is, however, itself unconventional; and is offset by +0.261*** during the negotiation phase of SSSR. The overall result, therefore, is one of a response 'swing' from EPS response (ERC) to reduced mistrust in ΔEPS (which may be regarded as earnings innovation. The SSSR1 coefficient estimate is again negative and significant, in further support of H8.1. The

estimation results shown in the second to fifth columns of the table in Appendix 1, for Non-ST, ST, Non-SOE and SOE firms, respectively, are qualitatively similar.

2005-2008

Table 8.8 shows the results of the estimation for Model (8.5) for 2005-2008. In the first column for estimation based on all firm-years from 2005-2008, the estimated coefficient on EPS (the ERC) at 0.076**, is positive and significant, as would conventionally be expected. This is augmented by 0.192*** after the 2007 transition to IFRS-converged CAS and the second phase of SSSR. The estimated coefficient on lagged EPS is also positive and significant, but this is overwhelmed by a larger negative and significant increment after the 2007 transitions. These results are consistent with a strengthening association between earnings and market returns as well as an increasingly conventional link between earnings and market returns. During this transition, the level of equity returns increased significantly (the estimate coefficient on IFRS_SSSR2 being 1.113***), results that add support for hypothesis H8.2. The results are qualitatively similar in the second to fifth columns of Table 8.8, except that: the estimated coefficients of EPS, albeit positive, are not significant for ST firms or Non-SOEs; the estimated coefficient on lagged EPS is not significant for Non-SOEs; the estimated coefficient on SSSR1xEPS is positive, but insignificant, for ST firms; and the estimated coefficient on SSSR1x(lagged EPS) is insignificant for ST firms. As commented upon earlier in this sub-section, attribution of the results either to IFRS-convergence alone or to SSSR progress alone is problematic. Hence, it is concluded that these results are produced by a joint SSSR-related and IFRS-related effect.

The results of the 'Lev and Zarowin-based' estimations for 2005-2008 are set out in the table in Appendix 8.2. They overall show a response 'swing' from EPS response (ERC) to earnings innovation (ΔEPS) response and as in the estimations of Model (8.5) over this sub-period, positive and significant coefficients for IFRS_SSSR2.

Table 8.8: Estimations of the ERC model (Model 8.5): firm years 2005-08

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
EPS	0.076**[*]	0.296***	0.042	0.033	0.166***
	(0.038)	(0.066)	(0.050)	(0.056)	(0.054)
EPS_{t-1}	0.085***	0.231***	0.058*[*]	0.046	0.148***
	(0.030)	(0.063)	(0.035)	(0.042)	(0.043)
IFRS_SSSR2	1.113***	1.108***	1.182***	1.127***	1.095***
	(0.023)	(0.030)	(0.049)	(0.039)	(0.029)
IFRS_SSSR2*EPS	0.192***	0.418***	0.032	0.141**	0.265***
	(0.045)	(0.071)	(0.063)	(0.067)	(0.062)
IFRS_SSSR2*EPS_{t-1}	-0.370***	-0.736***	-0.099	-0.279***	-0.459***
	(0.046)	(0.075)	(0.071)	(0.074)	(0.061)
Constant	-0.280***	-0.371***	-0.288***	-0.306***	-0.291***
	(0.016)	(0.026)	(0.035)	(0.026)	(0.021)
Observations	5,072	3,956	1,116	1,727	3,345
R-squared	0.448	0.476	0.465	0.440	0.458

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2= 0 for 2005-2006; 1 for 2007-2008. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance.

2007-2010

Turning to the results of the estimation of Model (8.5) based on firm-years from 2007-2010 – the post-IFRS-convergence period in which SSSR implementation transitioned from its second to the third (complete) phase. In the first column of the table, the estimated results for the coefficients of EPS and lagged EPS in the base case convey a conventional relationship between earnings and returns, these being 0.362*** (positive and significant) and -0.350*** (negative and significant), respectively. With the transition to the third phase of SSSR (its completion and free trading of previously-untradeable shares), however, this conventional relationship is eroded and, indeed, reversed: the coefficient on SSSR3xEPS is -0.454***, leaving the aggregate ERC in 2009-2010 at -0.092**[*] and the coefficient on SSSR3x(lagged EPS) is +0.471***. Also, in the transition returns fall, with the estimated coefficient of SSSR3 being at -1.04*** and these results add support for hypothesis H8.3. These are qualitatively similar in the second to fifth columns of Table 8.9, except that the estimated coefficients for

earning-based variables across ST firms, albeit of the same sign as for other firms, are not significant.

The results of the 'Lev and Zarowin-based' estimations for 2007-2010 are provided in the table in Appendix 8.3. Overall, these show an erosion in response to (or trust in) earnings innovation (ΔEPS) as well as in the estimations of Model (8.5) over this sub-period, with negative and significant coefficients for IFRS_SSSR2.

Table 8.9: Estimations of the ERC model (Model 8.5): firm years 2007-10

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
EPS	0.362***	0.879***	0.074	0.251***	0.567***
	(0.039)	(0.064)	(0.053)	(0.051)	(0.065)
EPS_{t-1}	-0.350***	-0.465***	-0.128	-0.433***	-0.293***
	(0.052)	(0.064)	(0.099)	(0.093)	(0.064)
SSSR3	-1.104***	-1.036***	-1.185***	-1.098***	-1.076***
	(0.033)	(0.040)	(0.075)	(0.059)	(0.040)
SSSR3*EPS	-0.454***	-0.893***	-0.138	-0.401***	-0.560***
	(0.067)	(0.097)	(0.114)	(0.114)	(0.092)
$SSSR3*EPS_{t-1}$	0.471***	0.801***	0.139	0.535***	0.450***
	(0.063)	(0.092)	(0.110)	(0.106)	(0.090)
Constant	0.802***	0.633***	0.886***	0.810***	0.743***
	(0.024)	(0.039)	(0.042)	(0.038)	(0.036)
Observations	3,971	3,234	737	1,449	2,522
R-squared	0.407	0.449	0.376	0.380	0.430

Based on firm-year observations 2007-2010 from Chinese listed firms. SSSR3 = 0 for 2007-2008; 1 for 2009-2010. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance.

In general, the findings from the estimation of the earnings response coefficient models (Model 8.5 and Model 8.3 (augmented)) are in accord with those from estimation of the value relevance model (Model 8.2), thus both supporting hypotheses H8.1, H8.2 and H8.3. The exception being ST firms, where the results are weaker and sometimes even to the contrary, which might not be surprising given the circumstance of their being firms facing ongoing listing issues.

Table 8.10: Summary of the results

Period	Transition from	Transition to	IFRS-converged CAS?	Results
2003-2006	Pre-SSSR	SSSR phase 1: negotiation period	No	• Reduction in share prices (-4.564***) • EPS: negative (-0.320***) changes (0.607***) to positive (0.287**) • BVPS: positive (0.590***) changes (-0.009) and hence, remains positive (0.581***) • ERC: positive (0.066***) changes (0.054**[*]) and hence, remains positive (0.120***)
2005-2008	SSSR phase 1: negotiation period Pre-IFRE-converged CAS	SSSR phase 2: lock-in period Post-IFRS-converged CAS	Transition	• Increase in share prices (4.579***) • EPS: negative (-2.002***) changes (4.249***) to positive (2.247***) • BVPS: insignificant (0.031) changes (0.662***) to positive (0.693***) • ERC: positive (0.076**[*]) changes (0.192***) and hence, remains positive (0.268***)
2007-2010	SSSR phase 2: lock-in period	SSSR phase 3: free trading of shares	Yes	• Reduction in share prices (-2.306***) • EPS: positive (0.415*[*]) changes (-1.400***) to negative (-0.984**[*]) • BVPS: positive (0.709***) changes (-0.474***) and hence, remains positive (0.235*[*]) • ERC: positive (0.362***) changes (-0.454***) to negative (-0.092**[*])

The results are extracted from Tables 8.5-8.10. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance

8.5.4 Summary of principal results

This subsection summarises the key findings of this Chapter, as collected into Table 8.10 (above). In this chapter, it has been hypothesised that: in the negotiation phase of SSSR, the association between earnings and share prices will increase, while the level of prices will fall; in the lock-in phase of the SSSR, the association between earnings and share prices will increase, and the level of prices will also increase; and after completion of the SSSR, the level of prices will decrease, with the association between earnings and share prices also decreasing. Consistent with and supporting hypotheses H8.1, H8.2 and H8.3 of this chapter, the principal multivariate regression estimation results show the following.

> Market share prices reduced significantly in the first phase (the negotiation phases) of the SSSR from 2005-2006 (estimated coefficient on SSSR1 = -4.564***). Then, they rose significantly after IFRS convergence and in the second phase (the lock-in phase) of SSSR of 2007-2008 (estimated coefficient on IFRS_SSSR2 = +4.579***). Finally, they fell significantly again in the third phase of SSSR (completion – previously untradeable shares became tradeable) from 2009-2010 (estimated coefficient on SSSR3 = -2.306***).
>
> In the 2003-2006 base case, there was a significantly negative association between earnings and market prices (estimated coefficient on EPS = -0.320***), which is contrary to expectations in conventional circumstances. In the first (negotiation) phase of SSSR, a conventional association between earnings and prices was established (estimated coefficient on SSSR1xEPS = +0.697***), with a positive relationship between book values and prices being maintained. With IFRS convergence and the second (lock-in) phase of SSSR, this conventionally-expected association between earning and prices was strengthened (estimated coefficient on IFRS_SSSR2xEPS = +4.249***), again, with the positive book values/share prices relationship holding. However, in the third phase of SSSR (free trading of previously untradeable shares), the conventional-expected relationship between earnings and prices was weakened and indeed, reversed (estimated coefficient on SSSR3xEPS = -1.400***), whilst the conventionally-expected positive book values/share prices relationship was maintained, yet weakened.

Similarly, as regards the relationship between earnings and market-based returns, ERC was strengthened in the negotiation phase of SSSR (estimated incremental ERC = 0.054**[*]); further strengthened after IFRS convergence in the lock-in phase of SSSR (estimated incremental ERC = 0.192***); and weakened, indeed, becoming negative, after its completion (estimated incremental ERC = -0.454***).

In relation to the changes in price levels over the SSSR implementation phases and convergence with IFRS, the foregoing results regarding these provide clear support for the hypotheses of the chapter: fall in prices in the negotiation phase of SSSR (part of H8.1), increase in prices after IFRS convergence during the lock-in phase (part of H8.2), and a fall in prices after the completion of SSSR (part of H8.3).

But as explained earlier in the chapter, the earnings/price and ERC relationships, and associated hypotheses are more complex. Care has been taken in discussing the results in this chapter to describe positive earnings/price relationships and ERCs as 'conventional' or 'conventionally' expected (or similar). Conventional expectations and interpretations assume efficient stock markets and thus, limited scope for market price manipulation. With that assumption, a strengthening earnings/price or ERC may be interpreted as improving earnings quality and hence, seen as being positive. In the context of the current study, however, manipulation of earnings over all three implementation phases of SSSR was hypothesised, and indeed, was found in the results of earlier chapters. Given that the Chinese stock markets were relatively illiquid and inefficient prior to 2009, a strengthening earnings/price or ERC during the negotiation and lock-in phases of the SSSR cannot be taken to indicate increasing earnings quality, but rather, that earnings manipulation had infiltrated into market prices. So, increased earnings value relevance over the first two phases of SSSR did not mean improved earnings quality in the Chinese context; consistent with the prediction of managers making sure that manipulated earnings are 'swallowed' by the stock market.

From 2009 onwards, with previously untradeable shares now tradable, a weakening earnings/price association or ERC in an increasingly liquid capital market (with improving price discovery and informational efficiency) indicates that management, whilst still manipulating earnings, was less able to use this to influence market prices.

8.6 Chapter conclusion

8.6.1 Main discussion and conclusions

In this chapter, the value relevance model of Ohlson (1995) (adapted) and the ERC model of Lev and Zarwoin (1999) (and other authors) (adapted) have been employed in order to investigate the market price and market returns relevance of accounting earnings amongst the population of Chinese A-share listed firms from 2003-2010 (inclusive). Separate analyses have performed for Non-ST versus ST firms, and for Non-SOEs versus SOEs. A non-conventional interpretation of the results on the value and returns relevance of earnings has been made, given: (i) the hypothesized incentives; (ii) the evidence of earnings manipulation presented in earlier chapters; and (iii) the lack of liquidity in the Chinese stock markets up to the end of 2008. Hence, this study has been methodologically developed by building upon and extending the existing literature.

The results obtained provide strong and consistent support for the chapter hypotheses, viz: the association between earnings and share prices increased, while the level of prices decreased, in the negotiation phase of SSSR; the association between earnings and share prices increased, while the level of prices also increased the lock-in phase of SSSR; and the level of prices decreased, whilst the association between earnings and share prices also decreases after the completion of SSSR. The exception, where results are weaker and sometimes contrary to this, is for ST firms, which not surprising given their circumstances as firms facing ongoing listing issues.

Therefore, reverting to the rationale underlying the hypotheses and building on the results, the following conclusions are suggested:

> In the first phase of SSSR, the empirical evidence is consistent with there being an incentive among Chinese A-share listed firms to drive down both earnings and share prices in the context of an illiquid and inefficient share market. What is more, the evidence suggests that managers acted upon this incentive and did so ‘successfully’.

In the second phase of SSSR, coincident with adoption of IFRS-converged CAS, the evidence is consistent with there being an incentive among Chinese A-share listed firms to drive up earnings and share prices in the context of a market of low liquidity and questionable efficiency. Moreover, the evidence again suggests that managers acted upon this incentive and did so 'successfully'.

In the third phase of SSSR, and after the adoption of IFRS-converged CAS, the evidence is consistent with there being an incentive among Chinese A-share listed firms to drive down earnings and share prices, but in the context of an increasingly liquid and efficient market. The evidence again suggests that Managers the evidence again suggests that acted upon this incentive, but in an increasingly liquid market, were unable to preserve a conventional link between earnings and prices.

As noted in the chapter sub-section containing the results, it cannot be asserted that findings regarding the transition to the second (lock-in) phase were driven entirely by SSSR-related incentives and actions. There was the concurrent arrival of IRFS-converged CAS, which surely had an effect. Evidence on the impact of IFRS adoption internationally is mixed, and China's convergence with IFRS was far from full adoption, so the possible impact on the earnings/price and earnings/book value associations resulting from IFRS convergence in China must be viewed with utmost caution. It cannot, however, fully be discounted; and it should be understood that the results in this study have been produced by a joint SSSR-related and IFRS convergence-related effects. An obvious contention, for example, would be that pre-conceptions/expectations as regards the benefits of IFRS convergence made it easier for managers to impose their desired impact of earnings management into share prices. Alali and Cao (2010) suggested that IFRS adoption improves value relevance but reduces reliability. There has been no study, however, that has questioned whether or not improved market recognition of accounting information in the context of reducing reliability really does mean an improvement in earnings quality.

The results of this chapter have shown that, statistically, earnings value relevance increased for Chinese listed firms after the commencement of SSSR, through its first two

phases (the negotiation phase and the lock-in phase), and with convergence to IFRS in the second phase. Thereafter, as previously non-tradable shares became tradable in the Chinese stock markets, and with consequent increases in market liquidity, earnings value relevance significantly decreased. The results for ERC are consistent with these earnings value relevance results. Hence, there is consistent evidence of an increase in statistical value and returns relevance of earnings in the first and second phases of SSSR implementation, and over the period of IFRS convergence, but there was a decrease after completion of SSSR. Contrary to conventional interpretation of these statistical facts, which would view increasing value and returns relevance of earnings from 2004-2008 as unequivocally a good thing, in the context of SSSR-related earnings management and illiquidity of the Chinese stock markets over this period, the increased value and returns relevance of earnings most likely represents a loss of reliability of share prices. Given that the idea of providing principle-based, clear and consistent information to better inform markets and investors (and to improve capital allocation efficiency) is at the heart of IFRS (Pope and McLeay, 2011; Epstein, 2009; Alali and Cao, 2010), a failure of the compulsory adoption of IFRS-converged CAS to thwart the success of managers' SSSR-related earnings management activities for 2007-2008 can be seen. Indeed, as posited above, it may have assisted them.

IFRS convergence was a milestone of Chinese accounting reform and SSSR a major reform of China's firm capital ownership in the journey towards a market-based economy. Earlier chapters have established that there was a decline in accounting-based earnings quality over the period of implementation of the SSSR, notwithstanding the adoption of IFRS-converged CAS in 2007. Given that both reforms must be recognised as having an impact upon earnings value/returns relevance, if the improved earnings value/returns relevance from 2005-2008 is taken evidence of price manipulation (rather than higher earnings quality) and the decreased earnings value relevance after 2009 is evidence of a more liquid market (again, rather than higher earnings quality), then we must be careful to recognise also that an implicit finding that SSSR-related incentives dominated any earnings management mitigating effect of IFRS convergence is being made. The findings and conclusions in this and previous chapters support the notion in the literature that accounting standards in isolation play only a limited role in increasing/decreasing earnings value relevance (Holthausen and Watts, 2001). For emerging/developing economies, the impact of IFRS convergence/adoption might

substantially be affected by concurrent reforms. In the case of China, the impact of IFRS convergence is conditioned on the concurrent SSSR implementation, and vice versa.

The contents of this chapter have added support to the notion of a pair of agency relationships, through which there is a coincidence of interest (or pain in common) between the Chinese central government and non-SOE-hierarchy (private) investors. The local SOE hierarchies were the agents of the central/local government in implementing SSSR. Through a desire to preserve value in SOEs, make profits in trading previously untradeable shares, and retain previous levels of SOE ownership/control, local SOE hierarchies managed earnings and prices. By so doing, they thwart the central/local government' intention of bringing capital market discipline and efficiency via SSSR. At the same time, they were the agents of all investors in running firms and their manipulations hugely increased the agency cost between themselves and the private investors.

8.6.2 More discussion according to the phases

As previously discussed in Chapter 3, there exists a unique agent problem in China due to government intervention from the start of the country's "market economy". Majority listing firms are SOEs from stock market establishment in the 1990s. Those SOEs are under central/local government control, with their managers being appointed by central/local government to play the agent role in the SOEs and representing majority-non-tradable shareholders' (controlling shareholders) interests. Thereafter, the management group and holders of non-tradable shares fell into the same interest group as the SOE hierarchy. So, in this study, it was predicted that the management incentive was operated on behalf of the holders of non-tradable shares three hypotheses, according to the three phases of SSSR, were proposed.

The first phrase of the SSSR, from 2005-2006, required firms to negotiate compensation for the holders of tradeable shares in recognition of the impact of a large number of previously-non tradeable shares becoming tradeable. During this phase, managers and the holders of non-tradable shares had a strong inventive to manipulate earnings to drive down the firms' share price – to reduce the amount of compensation payable and avoid assumed censure from their (political) superiors for loss of value in the firm. The chapter

results have shown that share price dropped significantly and earnings value relevance and returns relevance statistically significantly increased over this phase of SSSR implementation. However, the increase in the price and returns relevance of earnings is interpreted as above: with incentives to reduce the compensation payable to the holders of tradeable shares and in the context of an illiquid market, managers were able to drive manipulated earnings into share prices.

The second phase of the SSSR implementation was the lock-in period of 2007-2008, the commencement of which coincided with the compulsory adoption of IFRS-converged CAS, mandatory from 1st January 2007. During this phase, in which non-tradeable shares remained non-tradeable, it was hypothesised that there are incentives for management to drive up earnings and share prices in order to maximise the level of income from sales of originally non-tradable shares once they became tradable after the lock-in period, thereby hoping better to (be seen to) serve the SOE hierarchy. The adoption of IFRS-converged CAS at the beginning of this phase, albeit not full IFRS adoption, may have hampered management's ability to manage earnings and prices. Alternatively, it might, as discussed above, have assisted management. The results for 2005-2008 reveal that share prices climbed significantly from 2007 to 2008 and earnings value relevance rose significantly over the same period. As in the previous paragraph, the increase in the price relevance of earnings is interpreted to mean that, with incentives to increase eventual income from the sale of shares and in the context of an illiquid market, managers were able to drive manipulated earnings (manipulation as evidence in earlier chapters) into share prices. As discussed above, it appears that, if the impact of IFRS-converged CAS was to hamper management's ability successfully to manage earnings, it was perhaps not sufficiently strong; and, further, the pre-conceptions/ expectations as regards the benefits of IFRS convergence might have made earnings and price manipulation easier.

The final phrase of the SSSR commenced at the beginning of 2009. From this point, two years after IFRS-convergence, the SSSR lock-period ended, and previously non-tradeable shares became tradable. It was hypothesized that, once previously non-tradeable shares had been sold onto the market at inflated prices, as described above, there was an incentive for managers to drive down earnings and share prices. This allowed the SOE hierarchy to re-

acquire shares for less than the price at which they were sold, creating share trading profits, whilst preserving (re-establishing) previous levels of SOE ownership and control. Hence, the association between earnings and share prices decreases in this testing period. The results show that share prices did, indeed, drop significantly for 2009-2010, whilst over the same period earnings value/returns relevance significantly decreased. In this final phase, share markets were 'post-SSSR reformed' and more liquid, with the processes of information and price discovery leading to greater efficiency. In this context, the weakening of price/returns response to EPS represents a positive outcome of the SSSR, i.e. whilst management is, albeit still able to manipulate earnings, it is less able to drive that manipulation into share prices.

Chapter 9: Conclusions and discussions

9.1 Introduction

This first chapter sub-section section summarises China's institutional background, research objectives, research questions, hypotheses and research methods. Findings and conclusions are covered in section 9.2, and overall discussion and contributions are presented in section 9.3. Finally, section 9.4 discusses the limitations of this study and makes suggestions for the further work.

9.1.1 The setting and context

China has had formally constituted accounting and reporting standards, influenced to some extent by international GAAP (latterly IFRS), since the 1970s. The Chinese accounting setter was and is, however, under government control, so accounting standards – whether old CAS or, later, IFRS-converged IFRS – were developed and implemented principally to serve the governments interests and agenda, rather than the interests of private investors. China's adoption of IFRS-converged CAS in 2007 might be viewed *prima face* as an attempt to stimulate and improvement in the quality of Chinese financial reporting, but many pre-existing and continuing institutional factors, including the important SSSR, have significant influence on accounting information quality both before and after IFRS convergence.

The adoption of IFRS has fascinated accounting researchers who have explored whether or not the quality of accounting information has actually been improved by IFRS. The existing research has investigated the impact of IFRS adoption on reporting information quality in different countries by comparing the variation of accounting quality, either comparing between pre- and post-adoption in a single country, or as between different countries. By comparing two periods in different countries, researchers can explain whether or not (and the extent to which) institutional factors influence the impact of IFRS adoption on accounting information quality. This thesis argues that, when investigating the change of accounting information quality after IFRS adoption in a single country, it is important to consider other significant reforms - especially in emerging economies where there often (near-) contemporaneous and fundamental reforms; and aims to enhance the understanding

of accounting quality in China, a developing economy which is also one the world's largest and fastest growing economies.

In China, government interests are the major factor to drive variation in accounting quality after IFRS adoption. Accounting and auditing setters are under the supervision of government and the accounting standards serve the government interest (Aiken and Lu, 1993). This thesis argues that accounting information quality varies according to firms' financial market-based incentives, notwithstanding a principle-based accounting system being employed. The SSSR reform was implemented over 2004-2009. Whilst the SSSR negotiation period being completed over 2005-2006, there was a lock-in period over 2007-2008, and previously non-tradeable shares of most firms only became tradeable in the market from early 2009. Wan (2005) points out that SSSR provides a perfect situation for the holders of non-tradable shares to sell off the shares and cash out any gains by selling previously non-tradable shares at an early stage of the free float period; but that there would, however, be enormous pressures on the financial markets in following years, from 2011, say. During the course of the SSSR reform, the group enjoying the most benefit is the pre-existing privileged group, being SOEs and SOEs-related elites; whilst private market investors remain relatively underprivileged due to lack of access to inside information. Therefore, whilst transforming non-tradable shares to become tradable gives illusion of market liberalization, in fact it presented an opportunity for the informed elite to make gains through the process of privatization of public assets, trading shares with inside information (Wan 2005). This thesis focuses on the SSSR to deduce the nature of major financial market incentives faced by firms – over a period with a transition in accounting standards. The use of the SSSR phases as 'dummy variables' to proxy the change of SOEs' financial market incentives provides some key advantages. The holders of non-tradable shares have certain level of state association, so it can be used to observe the pattern of the accounting information quality with respect to government interests in the Chinese financial market. Also, firms required to engage with the SSSR started to implement the reform around 2005, and the majority announced a completion and free trading of previously untradable share by early 2008 – so the relationship between SSSR-related incentives and earnings quality can be observed both pre- and post-IFRS-convergence (i.e., with and without the effect of the new, principle-based standards). The first phase of the SSSR implementation occurred ahead of IFRS convergence; the second

phase of the SSSR coincided with the transition to IFRS-converged CAS; and the completion of the SSSR (fee trading of previously-untradeable shares) was in the post-IFRS-convergence period.

Therefore, this thesis investigates jointly the impact of both IFRS convergence and the SSSR implementation on accounting information quality in China: the SSSR must be considered, since the market and accounting reforms were implemented in tandem. And the findings must be interpreted with care, since both SSSR-related management incentive and IFRS-convergence are both potentially fundamentally important as regards any change in accounting information quality – around 2007 especially. To facilitate consideration of the impact of both the SSSR implementation and adoption of IFRS-converged CAS, this study establishes three (overlapping) sub-periods for analysis: (i) 2003-2006 – arrival of the first (negotiation) phase of the SSSR, pre-IFRS-convergence; (ii) 2005-2008 – transition from phase 1 to phase 2 (lock-in) of the SSSR, and transition to IFRS-converged CAS; and (iii) and 2007-2010 – completion of the SSSR implementation, post-IFRS-convergence.

9.1.2 The objectives, research questions and high-level hypotheses

The overall objective of this research is to investigate how earnings quality in China evolved against a backdrop of convergence towards IFRS and of split share structure reform and to determine whether the advent of IFRS-converged CAS and the SSSR were complementary in this regard, or whether the impact of one dominated that of the other.

The following set of research questions is adopted, taking a broad view of earnings quality measurement, given the obvious shortcoming in taking a single/narrow view, particularly in the complex Chinese context. What impact, if any, did IFRS convergence and the SSSR have on earnings quality as measured by: (i) alternative models of accruals quality; (ii) earnings persistence, earnings predictability and earnings smoothing; (iii) incidence of recognition of large losses, and timeliness of recognition of bad news; and (iv) value relevance of earnings and earnings response?

To investigate the questions above, this study develops the following high-level hypothesises that:

H1: In the first phase of the SSSR implementation, from 2005 to 2006, managers of Chinese A-share listed firms have an incentive to drive down both earnings and share prices. As a consequence, earnings and market prices will fall, and earnings quality will be reduced.

H2: In the second phase of the SSSR implementation, from 2007 to 2008, coincident with China's adoption of IFRS-converged CAS, managers of Chinese A-share listed firms have an incentive drive up earnings and share prices. As a consequence, and despite IFRS convergence, earnings and market prices will rise, and earnings quality will be reduced.

H3: In the third phase of the SSSR implementation, from 2009 to 2010, after adoption of IFRS-converged CAS, managers of Chinese A-share listed firms have an incentive to drive down both earnings and share prices. As a consequence, earnings and market prices will fall, and earnings quality will be reduced.

9.1.3 Empirical models

Chapter 5 adopts both the Dechow and Dichev (2002) model and Modified Jones Model (Dechow *et al.*, 1995) to investigate the accrual quality and detect the income-increasing and income-decreasing accruals management activities. Chapter 6 applies the Sloan (1996) model to investigate the earnings persistence by testing the association between current earnings and future earnings; the standard deviation of the errors from earnings persistence model to detect the earnings predictability (Kormendi and Lipe, 1987; Francis *et al.*, 2004; Dechow *et al.*, 2010); and the Barth *et al.* (2008) model to investigate the earnings smoothness. Chatper 7 investigates the earnings large losses reports under the model of Barth *et al.* (2008) and the timely loss recogniton model of Basu (1997). Finally, Chapter 8 investigates earnings value relevance and earnigns response following models from Ohlson (1995) and Lev and Zarowin (1999).

9.2 Summary of findings and conclusions

This section summarises the findings and conclusions from the empirical chapters of this thesis. Table 9.1 shows significant findings by earnings quality model and by study sub-period.

9.2.1 Accrual quality

The findings in Chapter 5 (at Table 9.1) suggest that in the first phase of SSSR, managers acted upon an incentive to reduce earnings and reduced the extent of income-increasing discretionary accruals manipulation, and so accrual quality reduced. In the second phase of SSSR, the results suggest managers acted upon an incentive to increase earnings and manipulated earnings upwards via both income-increasing and income-decreasing accruals manipulation, and earnings/accruals quality reduced again. In the third phase of SSSR, the findings are consistent with managers acting upon and incentive to decreasing earnings and reduced the extent of income-increasing discretionary accruals manipulation – and, yet again, earnings/accruals quality was also reduced.

9.2.2 Earnings persistence, predictability and smoothing

The findings here provide further evidence in line with that summarised under Table 9.1. In the first phase of the SSSR, among Chinese A-share listed firms, earnings were of low persistence and predictability, and were highly smoothed. In the second phase of the SSSR, earnings were again of low persistence and predictability, with no significant change as regards their smoothness. In the third phase of SSSR, among Chinese A-share listed firms, earnings were yet again of low persistence and predictability, and of increasing smoothness. The findings in the first and the last phases of SSSR with regard to increased earnings smoothness suggest that there is increased incentive to manage earnings downwards from above zero rather than manage earnings upwards from below zero since there is no significant change of small negative earnings in the first and the final phase of SSSR.

9.2.3 Loss recognition

The findings here also provide further evidence in line with that summarised under Table 9.1. In the first phase of the SSSR, the results reveal that there were more large loss reports and

more timely loss recognition so consistent with downwards earnings management. In the second phase, conversely, there was a reduction in the incidence of loss reports and in the timeliness of loss recognition, suggesting upwards earnings management. In the final phase, there was a second reversal, back to downwards earnings management, with increasing incidence of large loss reports and timeliness of loss recognition.

9.2.4 Value and returns relevance of earnings

With regards to earnings value relevance, this study finds that in the first phase of SSSR, there was an incentive among Chinese A-share listed firms to drive down both earnings and share prices in the context of an illiquid and inefficient share market. What is more, managers acted upon this incentive and did so 'successfully'. In the second phase of SSSR, coincident with adoption of IFRS-converged CAS, there was an incentive among Chinese A-share listed firms to drive up earnings and share prices in the context of an illiquid and inefficient market. Again, managers acted upon this incentive and did so 'successfully'. In the third phase of SSSR, and after the adoption of IFRS-converged CAS, there was an incentive among Chinese A-share listed firms to drive down earnings and share prices, but in the context of an increasingly liquid and efficient market. Managers acted upon this incentive, but in an increasingly liquid market, were unable to preserve a conventional link between earnings and prices.

The overall findings suggest that accounting-based earnings quality reduced whilst, (under conventional interpretation) market-based accounting information quality increased in the first two testing periods. In the collective study of Dechow and Schrand (2004), they summarized the reliability and quality of financial statements prepared under managers are the decisive factors of revealing firms' underlying economics, which is a function for earnings quality. Nevertheless, the findings of this study suggest that the earnings quality of financial statements is low, though, the responsiveness of stock prices to earnings are high in first two periods, which suggests that investors are not aware firms' underlying earnings performance and quality under the less liquid and efficient financial market. Therefore, managers were able to channel the manipulated earnings to the financial market.

In sum, the reforms provided opportunity to reposition/retrench the financial interests of powerful political and economic groups in China. The transition of non-tradable

SOE shares to become tradable provided the incentive and opportunity to profit from stock market reform/activity whilst retaining control. The evidence suggests that IFRS-convergence in China from 2007 could not (and did not) significantly curtail earnings management in response to SSSR-related incentives. Some evidence, indeed, is suggestive that earnings management activities were less constrained under IFRS-converged CAS – which allows debt restructuring and assets impairment through fair value measurement and exempts SOEs' related party transaction. Due to the Chinese government's intervention and political preferences as regards SOEs, both reforms extended the political power in the stock market but in a guise of market liberalization. The nature of Chinese political system determines the fictitious outcome of market liberalization (Chan, 2016), which determined the contradiction of those reforms that government has intention to accept the economic benefit of liberalized stock market on one hand, meanwhile, it is not desirable to keep a slack hand on its heavily intervened economic system.

Table 9.1: Summary of the overall result

Period	**2003-2006**	**2005-2008**	**2007-2010**
SSSR transition	From pre-SSSR to SSSR negotiation phase	From SSSR negotiation phase to SSSR lock-in phase	From SSSR lock-in phase to SSSR completion
IFRS context	Pre-IFRS-converged CAS	Transition to IFRS-converged CAS	Post-adoption of IFRS-converged CAS
Predictions	Downward earnings and price management; reduced earnings quality	Upwards earnings and price management; reduced earnings quality; despite transition to IFRS-converged CAS	Downwards earnings and price management; reduced earnings quality; despite use of IFRS-converged CAS
Significant findings:			
Working capital accruals quality: Dechow and Dichev (2002) model	No sig. result	Diminished working capital accruals quality	Diminished working capital accruals quality
Use of discretionary accruals: Modified Jones Model (Dechow *et al.*, 1995)	Reduction in upward manipulation of earnings via discretionary accruals; net shift in balance away from income-increasing accruals towards income-decreasing accruals	Increase in income-increasing discretionary accruals; and decrease in income-decreasing discretionary accruals; net shift in balance towards income-increasing accruals and away from income-decreasing accruals	Reduction in upward manipulation of earnings via discretionary accruals; a net shift in balance away from income-increasing accruals towards income-decreasing accruals
Persistence of earnings	Reduced earnings persistence	Reduced earnings persistence	Reduced earnings persistence
Predictability of earnings	Reduced earnings predictability	Reduced earnings predictability	Reduced earnings predictability
Earnings smoothing	Increase in earnings smoothing from above (downward earnings management)	No sig. result	Increase in earnings smoothness from above (downward earnings management)
Large loss recognition	Increase – consistent with downwards manipulation of earnings	No sig. result	Increase – consistent with downwards manipulation of earnings and prices
Timeliness of loss recognition in	Increase – consistent with downwards manipulation of earnings and prices	Decrease – consistent with upwards manipulation of earnings and prices	No sig. result
Share price: Ohlson (1995) model	Decrease – consistent with downwards manipulation of earnings and prices	Increase – consistent with upwards manipulation of earnings and prices	Decrease – consistent with downwards manipulation of earnings and prices
Earnings/price relationship: Ohlson (1995)	Strengthening – in the context of illiquid and inefficient financial market; and while earnings quality decreases	Continued strengthening – still in the context of illiquid and inefficient financial market; and while earnings quality decreases	Weakening – in the context of an increasingly liquid and efficient market; while earnings quality decreases

Earnings response coefficient (earnings/market returns relationship)	Strengthening – in the context of illiquid and inefficient financial market; and while earnings quality decreases; consistent with manipulation of prices	Continued strengthening – still in the context of illiquid and inefficient financial market; and while earnings quality decreases; consistent with manipulation of prices	Weakening – in the context of an increasingly liquid/efficient market; while earnings quality decreases; consistent reduced ability to manipulate prices and improving market price discovery

9.3 Overall discussion and contribution

Prior literature has found mixed evidence about the change in accounting quality after IFRS adoption in different countries – including China. But studies which investigate the impact of adopting IFRS-converged CAS have been silent on the concurrent SSSR. The SSSR proposal was made at the time after local governments' widespread use of bank loans and special financing vehicles to circumvent the legal prohibition of deficit and borrowing had reached intolerable levels (Chan, 2016). The mushrooming debt load of local governments, confirmed by nationwide special audits, resulted in predictions of potential a fiscal and banking crisis by the international financial press. In these circumstances, government accounting acquired a clear purpose of monitoring and reducing domestic financial risk by giving SOEs (government) greater access to fundraising channels, include bank loans and capital from the equity market. After the SSSR implementation was initiated, IFRS convergence followed almost immediately.

The adoption of IFRS converged CAS can be explained in terms of responding to the need of better managing firms' debt and equity capital to reduce fiscal risk, and to assist the success of the SSSR – acting on a clear mandate from the Ministry of Finance and following an international trend of IFRS adoption. But the outcome of IFRS convergence, in terms of information quality, due to China's unique political and economic circumstances and the earnings/prince management incentives created by the SSSR, should always have been in doubt. In the end, the SSSR-related incentives to manage earnings dominated; and earnings management may even have been less constrained under IFRS-converged CAS than it was under old Chinese GAAP.

Chinese 'de-governmentalizing' reforms in financial markets to pursue a free market model came with an ostensible desire to improve of earnings quality via the adoption of IFRS-converged CAS. Throughout the reforms, the Chinese government sent signals of financial market liberalisation by privatizing public assets, deregulating financial markets and adopting marked-based accounting standards. In practice, however, the reforms have delivered volatility both on the stock market and in financial statements – and have sustained the Chinese elite whilst negatively affecting ordinary investors. Private investors relative lack of information throughout the SSSR implementation and the privileged position of holders of non-tradable shares meant that share prices were unlikely to represent 'true' (unmanipulated)

value. The IFRS adoption and the acceptance of fair value measurement in China can only ever exist in name, as a symbol of China's commitment to global capitalism, unless China can disconnect the underlying political and economic architecture (Zhang *et al.*, 2012).

The main contribution of this study is to add to the following existing literature, which has been silent as regards to the joint impact on earnings quality in China of accounting standards reform and market reform. In particular, this thesis contributes to the existing literature in the following ways.

1. This is the first study to take into account both SSSR and IFRS reforms with a wide range of analysis. This research adds to the literature in terms of accounting quality under the joint impact of the SSSR and IFRS-converged CAS adoption in China, on which prior research has been silent, so missing the compound/confounding effect of this adoption on earnings quality.
2. Earnings quality is investigated across a broader range of dimensions than in previous studies. The existing published research in China has failed to investigate earnings persistence and timely recognition of losses in the Chinese capital market, commonly only probing one dimension of earnings quality. This study considers accounting-based measures of quality, namely accruals quality, earnings persistence, earnings predictability, earnings smoothness, and large loss recognition. It also involves investigating market-based measures, i.e. timeliness of loss recognition, earnings value relevance and earnings response. These accounting-based and market-based earnings quality measures assess, respectively, the reliability and the relevance properties of earnings. This wide/inclusive approach to earnings quality assessment adds strength to the investigation and richness to the findings.
3. The interpretation of model results extends from and in some cases is contra to conventional interpretation. It involves analysing/interpreting results and accounting quality consistent with China's unique institutional and stock market features, for which traditional interpretation of model results is not always sufficient/appropriate. For example, prior research studies investigating the value relevance of Chinese accounting information have

simply interpreted results in accordance with usual practice. That is, they have deduced improved earnings quality from an increased association between earnings per share and market share price. This study, in Chapter 8, interprets such an increase in association to support the notion that, in illiquid and inefficient stock markets (as China's markets were for the majority of the study period), earnings manipulations have been driven through to share prices.

4. The unique Chinese setting of widespread state ownership and political control is combined with agency theory, stakeholder theory, property rights theory and behavioural finance theory, with, in Chapter 3, a complex and interesting 'double agency' setting being posited. This setting leads to a coincidence of interests as between the Chinese central government and private investors – since each suffers as a result of a (separate but connected) agency problem with the local SOE hierarchies.
5. The hypotheses tested within this study were formulated based on incentives to local SOE hierarchies arising out of the SSSR process, and on IFRS convergence. The principal focus is, therefore, regulatory/political, rather than the more common one, that of firm-level earnings management incentives and firm-level earnings targets.
6. This study contributes in providing a warning to regulators and policy makers concerning confounding events accompanying standards' development/ adoption. This is also in relation to international and Chinese-domestic investors as regards the earnings quality of Chinese listed firms.

In sum, this study will add further empirical evidence to the accounting literature on the association between earnings quality and IFRS adoption in the context of strong Chinese institutional and country factors. Moreover, the findings will help policy makers, regulators and professional bodies to understand better the effect of accounting and market regulatory reforms in China, thereby facilitating their development of the Chinese accounting regulation and stock market structure.

9.4 Limitations and future research suggestions

There are limitations/caveats to this study with regard to the confounding effect of IFRS-convergence during the implementation of the SSSR. First, the state-owned or state related firms represent most of Chinese listed firms, meaning the vast majority of Chinese listed firms faced both the transition to IFRS-converged CAS and the SSSR, and leaving only a small sample – insufficient for analyses (of the types employed in this thesis) in isolation. Therefore, no findings are made as to the impact of IFRS-convergence absent direct SSSR-related incentives on the firm. Secondly, not all firms subject to the SSSR implementation were on exactly the same timetable -so, for example, commencement of implementation of the SSSR at the firm level, although clustered in early 2005, was not on 1st January 2005 (or any other particular date) for all firms; likewise the transition to phase 2 of the SSSR (clustered in early 2007) and the completion of the SSSR and market trading of previously untradeable shares (clustered in early 2009). Therefore, the impact of transitions through the SSSR implementation phases permeate through the market over (short) periods, rather than occurring on entirely cross-market consistent dates. Perhaps most important, however, arising out of the suggestive nature of the overall conclusion (above): "SSSR-related incentives to manage earnings are found to have dominated; and earnings management may even have been less constrained under IFRS-converged CAS than it was under old Chinese GAAP." What is not covered in the current thesis is the extent to which (if at all) different elements of IFRS-converged CAS might have reduced versus exacerbated the ability of managers to manipulate earnings and prices. It is extremely unlikely that *every* element of IFRS-converged CAS, as compared to its counterpart (if any) in old Chinese GAAP, made earnings management easier and more effective; or that *every* element made earnings management harder and less effective.

In addition to the foregoing, another limitation of this study arises in the application of "standard" empirical models. For example, in both earnings smoothing and large loss recognition tests, this study adopts the models of Barth *et al.* (2008) which defines small positive earnings (SPOS) to be equal to one if net income scaled by total assets is between 0 and 0.01 (and zero otherwise) and large negative report (LNEG) to be equal to one if net income scaled by total assets is less than -0.20 (and zero otherwise). These definitions may not be applicable (or optimal) in the Chinese context – given difference economic economy and firm-level characteristics.

Finally, in the value relevance chapter, this study interprets results and draws conclusions with a maintained assumption (over the first two of the three phases of the SSSR implementation) of lack of liquidity and efficiency in the market. Findings of an increase in association between managed earnings and share prices is taken to support the notion that, in illiquid and inefficient stock markets (as China's markets were for the majority of the study period), earnings manipulations have been driven through to share prices, and is recognised as contribution in previous section. But it must also be recognised as limitation or, at least, a point of debate. There is no previous study (of which I am aware) which has interpreted the empirical findings of a value relevance study under a maintained assumption of market *inefficiency*. The conclusions in Chapter 8 are drawn in line with the findings in (earlier) chapters 5 and 6 which show that accounting-based earnings quality declined over the phases of the SSSR implementation – reasoning that reducing earnings quality alongside improving value relevance (over the first two phases of the SSSR implementation) means that prices were also manipulatable and, indeed, being manipulated. That is, that the finding of increased value, in this setting and contra to usual interpretation, is *not* an indicator of improved earnings quality, rather it is consistent with lack of market efficiency. Conversely, in the final phase of the SSSR implementation, the finding of reducing value relevance, alongside earlier findings of continued reduction in accounting earnings quality, is interpreted as supporting the notion that the market prices are not so easily manipulatable in an increasingly liquid and efficient market. What is demonstrated (consistently, and at generally acceptable levels of significance) is that over 2003 to 2008, accounting earnings quality reduced while value relevance increased; and that over 2009-10, value relevance decreased while accounting earnings quality reduced. And one (single but important) difference between these two periods was the onset on trading in previously non-tradable shares in SOEs. But "generally acceptable levels of significance" do not, ultimately, prove anything. And it is legitimate, indeed important, to discuss and argue methodology – in this case, can/should value relevance tests be conducted only with a maintained hypothesis of market efficiency? The "reverse" interpretation of improved/reduced value relevance, dropping the maintained hypothesis, may, certainly, arouse controversy.

This study suggests that future research should explore Chinese financial reporting quality in a more granular manner. For example, future analysis can investigate earnings

quality by focusing on specific accounting standards, e.g., accounting standards for tangible and intangible assets and fair value measurement, or as regards specific industries, e.g., the high technology industry. This would provide more insight into the efficacy/ability of IFRS-converged CAS to help deliver on political/economic desires and imperatives. Second, future research might fruitfully search for Chinese institutional and/or firm-specific factors and model form (not necessarily linear) which best explain variation in accounting quality as between firms and over time. This thesis employs standard models existed in prior literature, with some development/deviation from conventional deployment and interpretation. Future research may further develop method(s) designed to suit emerging economies, where effect of IFRS convergence/adoption is strongly conditioned on country factors and concurrent institutional reforms.

Better understanding the quality of earnings in China and other major developing economies, and improvement of that quality, is highly economically significant on an international scale. It is, therefore, an important area for ongoing academic research; and dialogue between academics, policy makers, regulators, accounting and finance professionals, and investors/analysts.

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Appendix

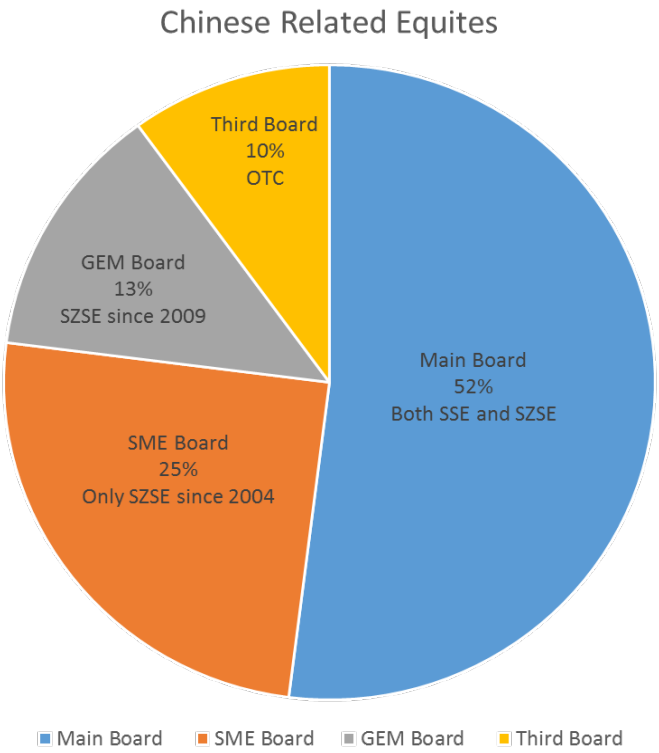
Appendix 2.1: Detailed differences between IFRS and IFRS converged CAS

	IFRS	**IFRS-converged CAS**
Preparation and Presentation of Finance Statements **(IAS 1)**	Prudence is only one of qualitative characteristics of financial statement; information should also be neutral, free from bias.	Emphasise on prudence in the recognition, measurement and reporting of transactions or events for accounting purpose
Consolidated and Separate Financial Statements **(IAS 27)**	Subsidiaries, associates and jointly controlled entities to be accounted for in the separate financial statement of parents either at cost or in accordance with IAS 39	Subsidiaries to be stated at cost; associates and jointly controlled entities to be accounted using the equity method
Investments in Associates **(IAS 28)**	Either using proportionate consolidation or equity method	Only allows equity method
Interests in Joint Ventures **(IAS 31)**	Jointly controlled operation/assets	Does not address the accounting treatment
Investment Property **(IAS 40)**	Certain specific exceptions measure under the same accounting policy for all its investment properties; Land use rights held for rental purpose required to measure at the fair value model	No request for specific exceptions; Land use rights held for rental purpose are measured at the cost model
Property, Plant and Equipment **(IAS 16)**	Allows both the cost model and the revaluation model	Only allows the cost model
Agriculture **(IAS 41)**	The fair value model is required for biological assets	The cost model shall be used for biological assets;
Intangible Assets **(IAS 38)**	Both the cost model and the revaluation model that fair value can be determined by reference to a price quoted in an active market	Only allows the cost model
Impairment of Assets**(IAS 36)**	Only prohibits the reversal of impairment of loss for good will	Prohibits the reversal of all impairment losses
Employee Benefits **(IAS 19)**	Requires the recognition of a defined benefit liability and an expense throughout the expected service period of the related employees	Does not address the accounting requirements for defined benefit plans
Accounting and Reporting by Retirement Benefit Plans **(IAS 26)**	Applies to all retirement benefit plans and prescribes the accounting and reporting by defined contribution plans and defined benefit plans	Does not deal with the accounting by defined benefit plans
Share-based Payment **(IFRS 2)**	Requires to recognise share-based payment transactions in which the entity receives goods or services in its financial statements, including transactions with employees or other parties	Only covers the accounting for share-based payment transactions for which services are received; and does not address if equity settled with cash alternatives.

Financial Instruments: Recognition and Measurement **(IAS 39**)	Debt restructuring	Debt restructuring is consistent with IAS 39; the principles of de-recognition of debts are not covered
Construction Contracts **(IAS 11)**	Allows direct costs incurred in securing a construction contract to be included as part of the contract cost if they can be separately identified and measured reliably	Requires such costs to be expensed as incurred
Accounting for Government Grants and Disclosure of Government Assistance **(IAS 20)**	Asset-related grants: allows to recognise either as deferred income or the deduction of the grant from the carrying amount of the asset; Biological asset-related grants: measures at fair value less estimated point-of-sale costs as income;	Only allows recognise asset-related grants as deferred income; does not proved specific requirements on grants related to biological assets.
Borrowing Costs **(IAS 23)**	Recognises either expensed as incurred or capitalised provided the capitalisation criteria are met	Only allows capitalisation approach
The Effects of Changes in Foreign Exchange Rates **(IAS 21)**	Allows a reporting entity to present its financial statements in any currency	All enterprises are required to present financial statements in RMB
Business Combinations **(IFRS 3)**	Reverse acquisitions	Not covered
Leases **(IAS 17)**	Leasehold interest in land shall be classified as an operating lease unless it meets criteria and can be account for as an investment property under fair value model	Leasehold interest in land are accounted for as intangible assets unless it meets criteria and can be account for as an investment property under costs model
Insurance Contracts **(IFRS 4)**	No specific requirements with respect to assets, liabilities, income and expenses arising from insurance contracts	There are specific requirements that apply to income, reserves and costs
Exploration for and Evaluation of Mineral Resource **(IFRS 6)**	Permits either the cost or revaluation model. Does not prevent the reversal of impairment losses	Only allows the cost model and capitalisation of exploratory drilling costs; Impairment losses are not allowed to reverse in future
Cash Flow Statements **(IAS 7)**	Allows enterprises to use either the direct method or the indirect method in reporting CFO; interest received and paid and dividends received and paid are classified as cash inflow from investing activities and cash outflow from financing activities.	Only allows the direct method; received and paid interest or dividends are required to be classified as operating, investing or financing activities in a consistent manner.
Interim Financial Reporting **(IAS 34)**	Condensed financial statements(income, cash flow and balance	Does not require a statement of changes in equity to be

	sheet) and condensed statement of changes in equity required	presented; all condensed statements shall conform to the annual statements
Earnings per Share **(IAS 33)**	Requires disclosure of the basic and diluted EPS amounts for profit and loss from continuing and discontinuing operations	Only requires the calculation of EPS based on net profit or loss for the current period
Segment Reporting **(IAS 14)**	Segment reporting only applies to enterprises whose equity or debt securities are publicly trade or in the process of issuing equity or debt in public securities markets	Requires segment information if enterprise has different operations or operates in different location
Related Party Disclosures **(IAS 24)**	SOEs are not exempted	SOEs are not regarded as related parties because they are state controlled and exempted from related party disclosures
Refer to Deloitte: China's New Accounting Standards-A comparison with current PRC GAAP and IFRS		

Appendix 5. 1: Distribution of Chinese listed firms



Appendix 5.2: Delisted ST firms

Stock Code	Stock Name	Year	Listing Status
000013	*ST Shihua	2004-09-17	delisted
000047	ST Zhongqiao	2003-05-30	delisted
000405	ST Xinguang	2004-03-19	delisted
000412	ST Wuhuan	2003-09-17	delisted
000535	*ST Houwang	2004-04-29	delisted
000583	*ST Tuopu	2007-05-18	delisted
000621	*ST Bite	2004-09-24	delisted
000660	*ST Hua'nan	2004-09-09	delisted
000699	*ST Jiazhi	2007-03-16	delisted
000730	*ST Huanbao	2004-09-22	delisted
000765	* Huanxin	2005-07-01	delisted
000769	*ST Dafei	2005-09-22	delisted
000827	*Changxing	2004-01-14	delisted
000832	*ST Longdi	2006-06-28	delisted
600065	*ST Lianyi	2007-12-07	delisted
600092	*ST Jingmi	2006-11-24	delisted
600181	*ST Yunda	2007-05-25	delisted
600646	ST Guojia	2003-09-22	delisted
600659	*ST Huadiao	2004-12-07	delisted
600669	*ST Ancheng	2004-09-15	delisted
600670	*ST Sida	2004-09-22	delisted
600672	*ST Jiaoying	2005-08-02	delisted
600700	*ST Shuma	2005-09-15	delisted
600709	ST Shengtai	2003-05-26	delisted
600752	*ST Haci	2005-09-23	delisted
600762	*ST Jinli	2007-11-19	delisted
600772	*ST Longchang	2006-11-24	delisted
600788	*ST Longman	2005-03-24	delisted
600799	*ST Longke	2005-12-30	delisted
600852	*ST Zhongchuan	2005-09-15	delisted
600878	*ST Beike	2004-09-15	delisted
600899	*ST Xinlian	2005-09-20	delisted

Appendix 5.3: Estimations of accrual quality: |DA| (Model 5.5): firm years 2003-2006

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
SSSR1	-0.022	-0.050***	0.009	-0.006	-0.041**
	(0.014)	(0.017)	(0.027)	(0.024)	(0.017)
SIZE	0.253***	0.356***	0.159***	0.047	0.441***
	(0.039)	(0.053)	(0.060)	(0.060)	(0.052)
LEV	-0.001	0.038***	-0.000	0.000	-0.003
	(0.001)	(0.012)	(0.001)	(0.001)	(0.002)
CR	-0.012	-0.001	-0.061*	-0.012	-0.009
	(0.008)	(0.009)	(0.033)	(0.014)	(0.010)
INV	-0.010	-0.006	-0.013	-0.009	-0.028
	(0.011)	(0.015)	(0.016)	(0.012)	(0.064)
NOI	0.116	0.103	0.169	0.229	0.119
	(0.128)	(0.138)	(0.339)	(0.411)	(0.133)
PROFIT	-0.018	-0.032	0.029	-0.021	-0.018
	(0.024)	(0.036)	(0.031)	(0.039)	(0.031)
CFO	0.116*	0.470***	-0.067	-0.044	0.594***
	(0.066)	(0.113)	(0.079)	(0.081)	(0.116)
MOWN	0.778	0.952	1.141	0.713	2.097
	(0.810)	(1.065)	(1.194)	(0.822)	(8.748)
CONCEN	0.001	0.002	-0.000	0.000	0.002*
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
AUDIT	0.029	0.125	-0.640***	-0.252	0.071
	(0.091)	(0.098)	(0.245)	(0.263)	(0.095)
Constant	-4.919***	-7.255***	-2.763**	-0.581	-9.021***
	(0.835)	(1.147)	(1.251)	(1.254)	(1.117)
Observations	2,314	1,766	548	788	1,526
R-squared	0.057	0.098	0.076	0.010	0.120

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Appendix 5.4: Estimations of accrual quality: |DA| (Model 5.5): firm years 2005-2008

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
IFRS_SSSR2	-0.037*	-0.031**[*]	0.153	-0.057	-0.007
	(0.034)	(0.014)	(0.143)	(0.064)	(0.032)
SIZE	0.293***	0.100***	0.687***	0.311***	0.264***
	(0.027)	(0.011)	(0.106)	(0.047)	(0.026)
LEV	0.000	0.011**	0.000	0.000	0.001
	(0.000)	(0.005)	(0.001)	(0.001)	(0.001)
CR	0.004*	0.000	0.003	0.003	0.009*
	(0.004)	(0.002)	(0.024)	(0.006)	(0.007)
INV	-0.026*	-0.002	-0.088	0.018	-0.014**
	(0.009)	(0.004)	(0.080)	(0.031)	(0.007)
NOI	1.006***	-0.126	1.316***	1.223***	0.170
	(0.120)	(0.118)	(0.291)	(0.179)	(0.143)
PROFIT	-0.116***	0.032*	-0.068***	-0.050**	-0.083**
	(0.042)	(0.018)	(0.146)	(0.077)	(0.039)
CFO	2.737***	0.828***	2.868***	2.344***	4.441***
	(0.041)	(0.042)	(0.101)	(0.056)	(0.066)
MOWN	0.850**	0.281***	-0.474**	0.946**	2.761
	(0.341)	(0.120)	(1.965)	(0.417)	(1.994)
CONCEN	0.004**	0.005***	-0.001	-0.000	0.006***
	(0.002)	(0.001)	(0.007)	(0.003)	(0.002)
AUDIT	-0.102	-0.033	-0.194	-0.070	-0.100
	(0.150)	(0.053)	(0.866)	(0.355)	(0.122)
Constant	-6.174***	-2.008***	-13.869***	-6.494***	-5.675***
	(0.562)	(0.241)	(2.163)	(0.990)	(0.550)
Observations	8,818	7,053	1,765	3,696	5,122
R-squared	0.271	0.058	0.279	0.270	0.480

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2=0 for 2005-2006; 1 for 2007-2008. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Appendix 5.5: Estimations of accrual quality: |DA| (Model 5.5): firm years 2007-2010

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
SSSR3	-0.043***	-0.057***	0.048	-0.028	-0.042[*]
	(0.023)	(0.019)	(0.069)	(0.017)	(0.034)
SIZE	0.431***	0.287***	0.621***	0.072***	0.455***
	(0.045)	(0.040)	(0.111)	(0.036)	(0.063)
LEV	0.000	0.005	0.000	0.000	0.001
	(0.000)	(0.015)	(0.000)	(0.000)	(0.002)
CR	0.012**	0.001	0.031**	-0.002	0.025***
	(0.005)	(0.005)	(0.012)	(0.004)	(0.009)
INV	-0.068**	-0.036*	-0.305***	-0.002**	-0.105***
	(0.033)	(0.024)	(0.185)	(0.036)	(0.040)
NOI	-0.455***	-0.147	-0.514***	-0.108**	-0.119
	(0.108)	(0.418)	(0.158)	(0.069)	(0.183)
PROFIT	-0.110***	-0.009	-0.171*	-0.010	-0.146**
	(0.041)	(0.037)	(0.088)	(0.031)	(0.059)
CFO	3.325***	0.682***	4.145***	0.675***	4.124***
	(0.061)	(0.080)	(0.105)	(0.063)	(0.077)
MOWN	1.165[*]	0.010	-0.143	-0.038	29.488***
	(0.580)	(0.422)	(2.240)	(0.290)	(4.233)
CONCEN	-0.003*	0.006***	-0.024***	0.007***	-0.010***
	(0.002)	(0.002)	(0.007)	(0.002)	(0.004)
AUDIT	0.051	0.052	-0.176	0.360*	-0.209
	(0.181)	(0.131)	(0.708)	(0.140)	(0.251)
Constant	-8.859***	-5.946***	-11.856***	-1.327*	-9.286***
	(0.948)	(0.856)	(2.227)	(0.748)	(1.339)
Observations	2,774	2,255	519	1,187	1,587
R-squared	0.059	0.067	0.060	0.035	0.115

Based on firm-year observations 2009-2010 from Chinese listed firms. SSSR3=0 for 2007-2008; 1 for 2009-2010. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Appendix 6.1: Estimations of small negative earnings (Model 6.4): firm years 2003-10

Dependent var:	(1) 2003-2006	(2) 2005-2008	(3) 2007-2010
SSSR1	1.055		
	(0.828)		
IFRS_SSSR2		1.638*	
		(0.922)	
SSSR2			1.198
			(0.819)
SIZE	4.419	4.906	3.198
	(3.803)	(3.485)	(3.881)
LEV	-0.084	-4.730**	-0.607
	(0.490)	(2.275)	(1.223)
CR	0.482	-0.158	0.503
	(0.665)	(1.310)	(0.708)
INV	10.722	11.334**	3.547
	(9.037)	(4.805)	(3.117)
NOI	57.913	-102.748**	-25.214
	(65.484)	(49.988)	(36.445)
CFO	7.652	-14.604*	-4.750
	(8.371)	(7.581)	(6.075)
MOWN	2.379	0.960	0.503
	(1.877)	(1.025)	(1.302)
CONCEN	0.037	0.229**	-0.055
	(0.058)	(0.097)	(0.071)
Observations	421	764	426

Based on firm-year observations 2003-2010 from Chinese listed firms. SSSR1=0 for 2003-2004; 1 for 2005-2006. IFRS_SSSR2 =0 for 2005-2006; 1 for 2007-2008. SSSR3 = 0 for 2007-2008; 1 for 2009-2010. All variables are as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects logit at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one - rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance

Appendix 7.1: Estimates of LNEG (Model 7.1): firm years 2003-06

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
SSSR1	0.462***	0.294	0.574**	0.653**	0.292
	(0.173)	(0.293)	(0.235)	(0.312)	(0.225)
SIZE	-0.725	-1.505	-0.783	-1.058	-0.851
	(0.571)	(1.197)	(0.653)	(0.980)	(0.842)
LEV	0.062**	0.370***	0.046*	0.034	0.230**
	(0.030)	(0.103)	(0.027)	(0.032)	(0.091)
CR	-1.355***	-2.904***	-0.751**	-0.913**	-2.230***
	(0.300)	(0.667)	(0.328)	(0.459)	(0.493)
INV	-0.014	-0.414	-0.005	-0.039	-0.887
	(0.194)	(1.382)	(0.194)	(0.214)	(1.200)
NOI	-6.776**	-12.605*	-6.705**	-4.369	-13.068**
	(2.862)	(7.454)	(3.128)	(3.055)	(5.932)
CFO	-9.979***	-11.074***	-9.962***	-11.370***	-8.177***
	(1.702)	(2.782)	(2.206)	(2.773)	(2.253)
MOWN	106.665***	-512.881	62.937*	168.634	-66.184
	(36.239)	(1,205.587)	(37.577)	(411.022)	(114.267)
CONCEN	0.009	0.024	-0.003	0.005	0.014
	(0.012)	(0.019)	(0.016)	(0.021)	(0.016)
AUDIT	0.186	-0.384	0.537		0.073
	(0.677)	(1.254)	(0.933)		(0.731)
Observations	725	323	402	269	456

Based on firm-year observations 2003-2010 from Chinese listed firms. SSSR1 = 0 for 2003-2004; All variables as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Appendix 7.2: Estimates of LNEG (Model 7.1): firm years 2005-08

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
IFRS_SSSR2	0.156	0.366	0.063	-0.021	0.202
	(0.127)	(0.218)	(0.184)	(0.215)	(0.166)
SIZE	-0.562*	-1.982***	-0.738*	-1.205**	-0.452
	(0.308)	(0.627)	(0.437)	(0.556)	(0.453)
LEV	-0.001	2.166***	-0.001	-0.001	0.007
	(0.001)	(0.359)	(0.002)	(0.002)	(0.009)
CR	-0.646***	-0.157	-0.556***	-0.323**	-1.072***
	(0.155)	(0.166)	(0.188)	(0.131)	(0.270)
INV	0.232	-0.016	0.536	0.927	-0.439
	(0.341)	(0.588)	(0.578)	(0.839)	(0.659)
NOI	-18.406***	-5.614	-25.268***	-29.582***	-14.646***
	(3.863)	(5.255)	(5.694)	(8.779)	(4.362)
CFO	-5.287***	-6.126***	-5.396***	-4.455***	-6.210***
	(1.031)	(1.685)	(1.480)	(1.547)	(1.473)
MOWN	-9.300	-14.525	3.874	-4.642	-17.539
	(9.042)	(14.070)	(16.840)	(11.766)	(15.707)
CONCEN	-0.008	0.031*	-0.026*	0.007	-0.009
	(0.010)	(0.016)	(0.014)	(0.017)	(0.013)
AUDIT	-0.053	-15.510	0.743	-16.307	0.744
	(0.594)	(495.364)	(0.749)	(1,214.059)	(0.703)
Observations	1,274	645	629	455	819

Based on firm-year observations 2003-2010 from Chinese listed firms. IFRS_SSSR2=0 for 2005-2006; 1 for 2007-2008. All variables as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Appendix 7.3: Estimates of LNEG (Model 7.1): firm years 2007-10

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SOE	(5) SOE
SSSR3	0.746***	0.901***	0.712***	0.673***	0.796***
	(0.159)	(0.242)	(0.243)	(0.254)	(0.207)
SIZE	-0.969**	-3.868***	-0.030	-2.201**	-0.287
	(0.442)	(1.036)	(0.669)	(0.979)	(0.526)
LEV	-0.000	1.830***	-0.001	-0.001	0.004
	(0.001)	(0.436)	(0.004)	(0.003)	(0.015)
CR	-1.078***	-0.546**	-1.848***	-1.276***	-0.906***
	(0.234)	(0.245)	(0.507)	(0.485)	(0.262)
INV	0.792	-0.352	1.934	1.812	0.579
	(0.548)	(0.636)	(1.456)	(1.264)	(0.649)
NOI	-16.785***	2.021	-35.454***	-34.012***	-11.669**
	(4.205)	(5.937)	(8.817)	(10.863)	(4.632)
CFO	-2.478**	0.142	-8.660***	-0.330	-5.312***
	(1.038)	(1.434)	(2.378)	(1.343)	(1.633)
MOWN	-12.938	-57.037	127.495	-14.647	-965.768
	(9.598)	(36.796)	(181.316)	(9.781)	(700.120)
CONCEN	-0.007	-0.004	-0.016	0.015	-0.027
	(0.018)	(0.024)	(0.039)	(0.029)	(0.025)
AUDIT	-0.318	-14.735	14.512	-14.791	0.124
	(0.898)	(913.898)	(939.767)	(1,905.655)	(1.033)
Observations	791	456	335	290	501

Based on firm-year observations 2003-2010 from Chinese listed firms. SSSR3=0 for 2007-2008; 1 for 2009-2010. All variables as defined in Tables 5.2 and 5.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets, as described, is simply in order to convey completely the nature of the significance.

Appendix 8.1: Estimations of the ECR model with SSSR1 (Model 8.3): firm years 2003-06

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SEO	(5) SEO
EPS	0.346***	0.770***	0.230***	0.228***	0.451***
	(0.032)	(0.061)	(0.044)	(0.041)	(0.046)
ΔEPS	-0.281***	-0.352***	-0.205***	-0.214***	-0.338***
	(0.029)	(0.047)	(0.041)	(0.037)	(0.042)
SSSR1	-0.159***	-0.137***	-0.165***	-0.134***	-0.168***
	(0.012)	(0.016)	(0.023)	(0.018)	(0.016)
SSSR1*EPS	-0.162***	-0.252***	-0.111**	-0.096**	-0.200***
	(0.029)	(0.044)	(0.047)	(0.039)	(0.042)
SSSR1*ΔEPS	0.216***	0.142***	0.159***	0.184***	0.238***
	(0.031)	(0.053)	(0.044)	(0.040)	(0.045)
Constant	-0.105***	-0.209***	-0.117***	-0.141***	-0.102***
	(0.010)	(0.018)	(0.018)	(0.015)	(0.014)
Observations	3,725	2,788	937	1,251	2,474
R-squared	0.174	0.171	0.170	0.174	0.180

Based on firm-year observations 2003-2006 from Chinese listed firms. SSSR1 = 0 for 2003-2004; 1 for 2005-2006. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance.

Appendix 8.2: Estimations of the ECR model with IFRS_SSSR2 (Model 8.3): firm years 2005-08

Dependent var:	(1) 2005-2008	(2) Non-ST	(3) ST	(4) Non-SEO	(5) SEO
EPS	0.161***	0.527***	0.101	0.079	0.314***
	(0.046)	(0.085)	(0.061)	(0.067)	(0.066)
ΔEPS	-0.085***	-0.231***	-0.058*	-0.046	-0.148***
	(0.030)	(0.063)	(0.035)	(0.042)	(0.043)
IFRS_SSSR2	1.113***	1.108***	1.182***	1.127***	1.095***
	(0.023)	(0.030)	(0.049)	(0.039)	(0.029)
IFRS_SSSR2*EPS	-0.178***	-0.317***	-0.066	-0.138*	-0.193***
	(0.046)	(0.069)	(0.083)	(0.071)	(0.062)
IFRS_SSSR2*ΔEPS	0.370***	0.736***	0.099	0.279***	0.459***
	(0.046)	(0.075)	(0.071)	(0.074)	(0.061)
Constant	-0.280***	-0.371***	-0.288***	-0.306***	-0.291***
	(0.016)	(0.026)	(0.035)	(0.026)	(0.021)
Observations	5,072	3,956	1,116	1,727	3,345
R-squared	0.404	0.423	0.447	0.383	0.424

Based on firm-year observations 2005-2008 from Chinese listed firms. IFRS_SSSR2 = 0 for 2005-2006; 1 for 2007-2008. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance.

Appendix 8.3: Estimations of the ERC model with SSSR3 (Model 8.3): firm years 2007-10

Dependent var:	(1) All	(2) Non-ST	(3) ST	(4) Non-SEO	(5) SEO
EPS	0.012	0.413***	-0.053	-0.182*	0.274***
	(0.064)	(0.092)	(0.110)	(0.098)	(0.097)
CEPS	0.350***	0.465***	0.128	0.433***	0.293***
	(0.052)	(0.064)	(0.099)	(0.093)	(0.064)
SSSR3	-1.104***	-1.036***	-1.185***	-1.098***	-1.076***
	(0.033)	(0.040)	(0.075)	(0.059)	(0.040)
SSSR3*EPS	0.017	-0.092	0.001	0.134	-0.110
	(0.059)	(0.070)	(0.140)	(0.107)	(0.072)
SSSR3*CEPS	-0.471***	-0.801***	-0.139	-0.535***	-0.450***
	(0.063)	(0.092)	(0.110)	(0.106)	(0.090)
Constant	0.802***	0.633***	0.886***	0.810***	0.743***
	(0.024)	(0.039)	(0.042)	(0.038)	(0.036)
Observations	3,971	3,234	737	1,449	2,522
R-squared	0.407	0.449	0.376	0.380	0.430

Based on firm-year observations 2007-2010 from Chinese listed firms. SSSR3 = 0 for 2007-2008; 1 for 2009-2010. All variables as defined in Tables 8.2 and 8.3. Estimations performed in STATA as panel regressions with fixed effects at the firm level. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively, on the basis of two-tailed tests. [*] represents improved significance, if a one- rather than two-tailed test is adopted. The hypotheses of this chapter are directional, so adoption of one-tailed tests is permissible/appropriate. The use of square brackets as described is simply in order to convey completely the nature of the significance.